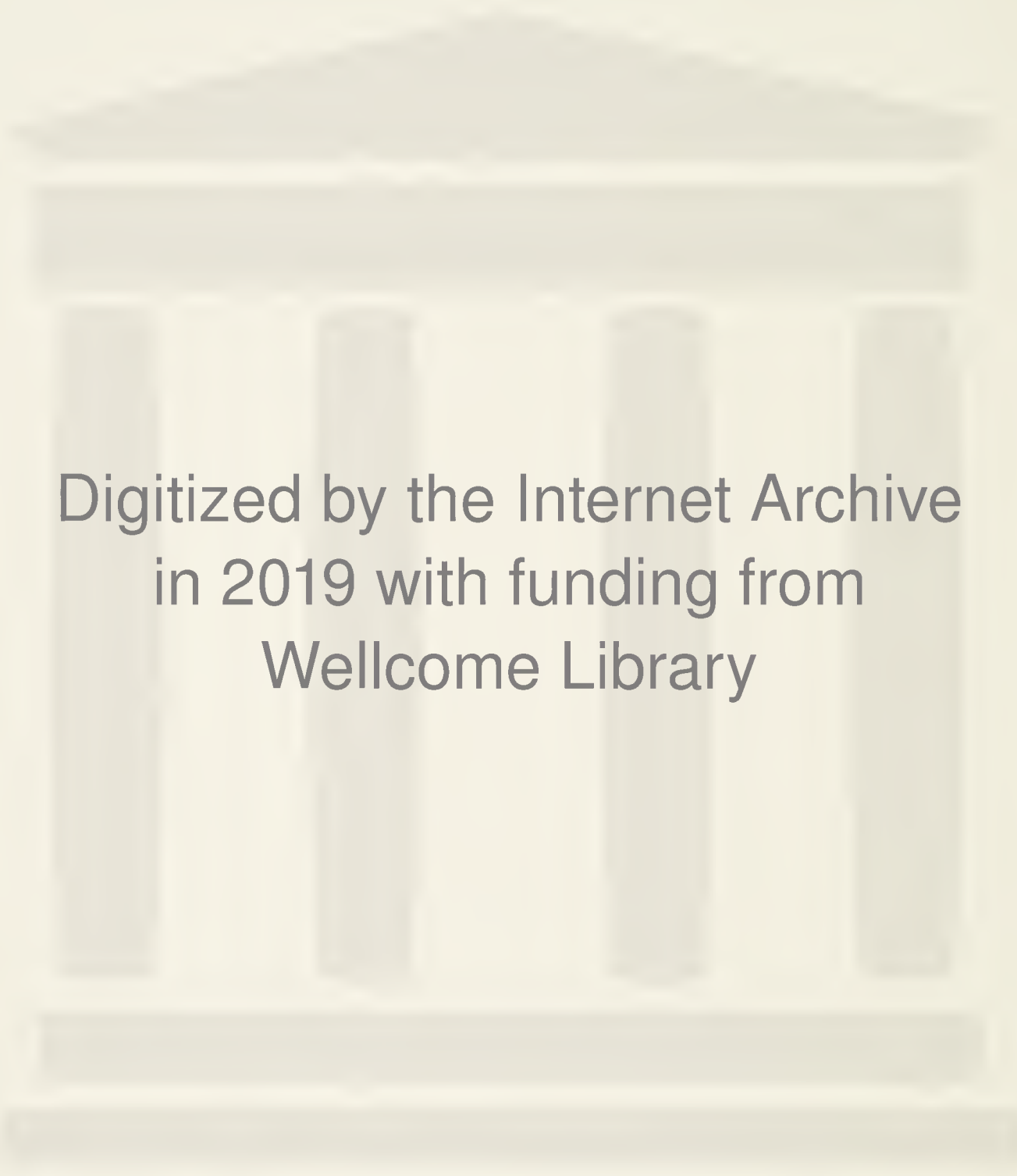


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THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

VOL. XIII.

PHILADELPHIA:
CAREY, LEA & BLANCHARD.

1833.



TO READERS AND CORRESPONDENTS.

Communications have been received from Professor DICKSON and Drs. GERHARD, THOMAS; TURNBULL and HULSE; they shall have an insertion in our next.

The reviews of Boott's life of Armstrong, and of Raspail's *Chimie Organique*, were received too late for the present No.

Dr. PERRINE's communications were received just as the last forms were preparing for press, of course too late to enable us to grant all his requests.

Our article on Cholera has been omitted to make room for the communications of our correspondents.

Our French Journals have, from some accident, not come to hand, but through the kindness of our friends we are indebted for the loan of them to the latest dates.

The following works have been received:—

A Report of the Method and Results of the Treatment for the Malignant Cholera, by small and frequently repeated doses of Calomel; with an Inquiry into the Nature and Origin of the Complaint, with a view to a more just appreciation of the Means for its Prevention and Cure. With numerous illustrative Cases. By JOSEPH AYRE, M. D. Member of the Royal College of Physicians, &c. &c. &c. London, 1833. (From the author.)

Clinical Illustrations of the most important Diseases of Bengal, with the result of an Inquiry into their Pathology and Treatment. By WILLIAM TWINING, Member of the Royal College of Surgeons of London; First Assistant Surgeon, General Hospital, Calcutta. Calcutta, 1832. 8vo. (From the author.)

An Essay on the Nature of the Epidemic usually called Asiatic Cholera, &c. with the Reasons why it should be regarded as an Epidemic Diarrhœa Serosa, instead of Common Cholera Morbus; and an attempt to found the Treatment upon the Pathology of the Disease: being the Annual Communication to the Medical Society of the state of New York, February 5, 1833. By THOMAS SPENCER, M. D. President: Honorary Member of the Kentucky and Philadelphia Medical Societies; Corresponding Member of the Albany Lyceum of Natural History, &c. Albany, 1833. (From the author.)

Die Cholera. Nach eigenen Beobachtungen in der Epidemie zu Königsberg im Jahre 1831, nosologisch und therapeutisch dargestellt von Dr. LUDWIG WILHELM SACHS, ordentl. Professor der Medicin zu Königsberg, mehrerer gelehrten Gesellschaften Mitglieder, Ritter des St. Wladimir-Ordens vieter Klasse. Königsberg, 1832. (From Dr. Von dem Busch, of Bremen.)

On Irritable Uterus. By WALTER CHANNING, M. D. Professor of Midwifery and Medical Jurisprudence in Harvard University. Being the Annual Discourse before the Massachusetts Medical Society. (From the author.)

Some additional Observations relative to the Cholera, and a Prescription for the Treatment of that Disease in all its Stages. By SAMUEL A. CARTWRIGHT, M. D. of Natchez. (From the author.)

A Discourse on the Privileges and Duties of Man as a Progressive Being, delivered before the New York Alpha of the Phi Beta Kappa Society, July 23, 1833. By BENJAMIN F. JOSLIN, M. D. Professor of Natural Philosophy in Union College. Schenectady, 1833. (From the author.)

Workingmen's Library, No. IV. Vol. I. On the Treatment of Infants. By a Lady. Boston, 1833. (From R. Rantoul, Jr.)

Address delivered in the Masonic Hall at the Commencement of the First Course of Lectures of the Medical Institute of the state of Georgia. By PAUL F. EVE, M. D. Professor of Surgery. Augusta, 1832. (From the author.)

Instructions and Observations concerning the use of the Chlorides of Soda and Lime. By A. G. LABARRAQUE. Translated by JACOB PORTER. Second edition. New Haven, 1831. (From the translator.)

A Manual of Practical Toxicology; condensed from Dr. CHRISTISON's Treatise on Poisons. With notes and additions by J. T. DUCATEL, M. D. Professor of Chemistry and Pharmacy in the University of Maryland, &c. &c. Baltimore, 1833. (From the author.)

The Edinburgh Medical and Surgical Journal, for July, 1833. (In exchange.)

The Medico-Chirurgical Review, for July, 1833. (In exchange.)

The London Medical Gazette, for June, July, 1833. (In exchange.)

The Western Journal of the Medical and Physical Sciences. Edited by Daniel Drake, M. D. for July, 1833. (In exchange.)

The Transylvania Journal of Medicine and the Associate Sciences. Vol. VI. No. 2. (In exchange.)

The Medical Magazine, August, 1832; April, June, August, and September, 1833. (In exchange.)

The Western Medical Gazette, No. 16. (In exchange.)

Baltimore Medical and Surgical Journal and Review, October, 1833. (In exchange.)

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "CAREY, LEA & BLANCHARD, Philadelphia, for the Editor of the American Journal of the Medical Sciences."

All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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The Population Returns of 1831, with a Statement of Progress in the Inquiry regarding the Occupation of Families and Persons and the Duration of Life; an Historical and Descriptive Account of London, Westminster, and other parts of the Metropolis; a Comparative Account of the Population of Great Britain, in 1801, 1811, 1821, and 1831, &c. &c. &c. London, 1832.

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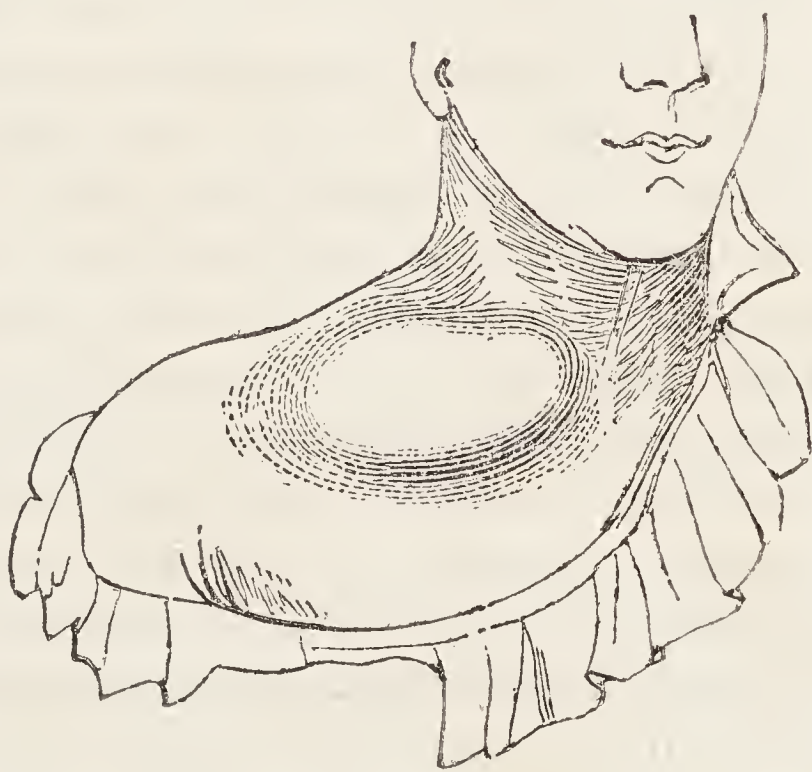
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THE
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ART. I. *Removal of the Clavicle in a state of Osteo-Sarcoma.* By
JOHN C. WARREN, M. D, Professor of Anatomy and Surgery in
Harvard University, Boston.

DANIEL SMITH, æt. 24, farmer, of Wayne county, Maine, admitted into the Massachusetts General Hospital, for a tumour of the right clavicle, November 1st, 1832. One year ago, in attempting to roll a heavy stick of timber over, placed both arms under it, bringing his chest firmly against it. Immediately after accomplishing his object, felt a severe pain at the junction of the right clavicle with the sternum. After finishing his work, he applied to a physician for advice. It was pronounced an irreducible dislocation, but the swelling was lessened by warm, bitter fomentations.



Continued to work, though arm quite weak till the month of August last, when he quitted his labour, thinking he had “sprained the other collar bone.” The following month, October, the swelling began to increase rapidly, and become hard. At times he felt as he thought “rubbing of the bones.” Now has a tumour measuring seven inches from sternal end of right clavicle in line with this bone to the scapular end; from its upper bound, viz. the clavicle, towards the nipple,

five inches. Thinks it varies in size, being sometimes larger than at others; at times feels it pressing on windpipe: feels hard; no evident fluctuation; pulsation slightly perceived by stethoscope; some pain most of time, but increased by using arm or by coughing; pulse 84; no sensible difference in the pulsation at wrists; general health not materially impaired, but constitution scrofulous and irritable.

9th. Some enlargement of tumour, extending to right shoulder.

The preceding history is extracted from the hospital record.

10th. *Operation.*—The patient being placed on a table, the shoulders elevated, an incision was made from the acromial extremity of the clavicle to the sternal extremity of the clavicle of the opposite side. This was crossed by an incision at right angles with it, beginning just below the middle of the sterno-mastoid muscle, and extending to the face of the pectoralis muscle below the middle of the clavicle. The four flaps were then dissected from the surface of the tumour. Next the outer extremity of the clavicle was laid bare, by dissecting the deltoid muscle from its anterior edge, and the trapezius from its posterior edge, and the division of the coraco-clavicular ligaments. An eyed probe, armed with a ligature, was then passed under the clavicle, and the ligature being attached to a chain saw, this was drawn under, and the clavicle sawed through.

The separation of the tumour now began.

A strong ligature being passed around the outer extremity of the divided clavicle, the tumour was partially moved by it, so as to give tension to the surrounding soft parts. The pectoralis major muscle was cut through, and dissected from the lower edge of the tumour, and drawn so as to expose the pectoralis minor and the cephalic vein. Now the dissection extending under the tumour, the subclavian muscle was distinguished and dissected from the tumour at its outer part, but at the sternal part it was lost in the tumour, where of course the dissection proceeded over the surface of the subclavian vein. An adhesion of the tumour to the second rib, in which it was imbedded, prevented a perfect separation at this part till the close of the operation.

The next step was to divide the attachments to the upper or cervical edge of the tumour. First the posterior external jugular vein was divided and tied: it was filled with a dense lymph, and discharged no blood. Next the sterno-mastoid muscle was cut across, and the sheath of the cerebral blood-vessels exposed. The internal jugular vein was perceived to pass from the neck into the substance of the tumour in such way as to render it difficult to dissect without dividing it. This was however accomplished, and then the carotid artery and par vagum nerve presented them-

selves. On reaching the internal extremity of the tumour, the anterior external jugular vein was found imbedded in it. This was filled with solid lymph, and was tied, as it would not have been safe to have left it without a ligature.

Nothing now remained to be done, but to separate the sternal end of the tumour from the corresponding part of the jugular and subclavian veins. By great caution this was safely accomplished, and the tumour removed. When this was effected, the whole extent of the subclavian vein was exposed—the lower part of the jugular vein and the par vagum nerve. These being put in motion by the pulsation of the subclavian and the carotid arteries, and the arteria innominata, presented a formidable appearance.

Little blood was lost in the operation. Only one or two arteries were tied, and the veins specified above. The flaps were brought over and retained by three sutures and adhesive plaster, so as to cover the wound perfectly.

The patient's appearance after the operation was good, and by a recurrence to the Surgical Diary, it appears his symptoms were most favourable to the thirteenth day. He was then able to sit up; had appetite; took small quantities of solid food, and had every promise of a favourable termination of his case.

The wound united to a considerable extent by the first intention, and the ununited part went on favourably. On the thirteenth day he was affected with chills, pain in the epigastric region, and his pulse rose from 80 to 112. These symptoms were followed by a nervous agitated state, and eventually by a slight delirium, with no other local phenomena than these above-mentioned.

On some days he appeared better, and in a fair way to recover, and this hope was not abandoned till the day before his death, which occurred on the 8th day of December, in the fourth week from the operation.

On examination of the body after death, a slight adhesion appeared at the point where the pleura corresponded with the wound, but this membrane in the vicinity of the wound was sound, and the lung not inflamed at that part. The inferior edge of the right lung was fringed with lymph. The lung of the other side had a more considerable effusion of lymph externally; and in its substance, two or three spots of effused lymph, near an inch in diameter. A quantity of sanguineous fluid was discharged into the left cavity. The heart and pericardium were unchanged. The brain presented nothing remarkable. The viscera of the cavity of the abdomen were healthy, except a

slight blush where the intestines were in contact, and an enlargement of the right kidney.

The subclavian vein, the upper part of the axillary, and the cephalic vein contained a coagulum, which was of long standing, and adhered closely to the coats of these vessels.

On reviewing this case to discover the cause of the unexpected unfavourable result, we notice—

First. That the patient was of a bad habit of body. He was naturally weak and excitable.

Second. The absence of any local affection sufficient to be a cause of death.

Whence it may be inferred, that the unfavourable issue was the result of constitutional irritation produced by the impression of a severe operation.

Boston, July, 1833.

ART. II. *Cases of Rubeola followed by Death, collected at the "Hôpital des Enfants Malades" of Paris.* By W. W. GERHARD, M. D. of Philadelphia.

AN apology seems necessary to excuse the publication of observations on measles, with an analysis of the symptoms and lesions of so common a disease. But such of our readers as have investigated the subject may know that the affections most frequently met with by practitioners are really least known, and that amongst the diseases of children, such of them as meningitis, which are comparatively rare, have been examined with much attention, while so extremely common an affection as measles is treated of in those general terms which can never serve as the materials for a complete history of the disease. The only treatise upon rubeola contained in the French medical literature which merits attention, is that of M. GUERSENT in the "*Dictionnaire de Medecine*;" but this essay is necessarily general, and is wanting in that degree of precision which is now requisite in every medical memoir.

The following cases are intended as specimens of observations to illustrate the conclusions which will be published in another number of this Journal, and as all the original observations could not be communicated, a part of them may serve as proof of the manner in which the

facts were collected. Within the last eight months I have collected, at the Children's Hospital of Paris, about fifty cases of measles more or less detailed; the imperfection of some of them, arising in part from the difficulty of obtaining a correct knowledge of the symptoms of young children, but a still greater number are incomplete from circumstances which might have been obviated by greater attention. The publication of the whole number is of course impracticable, but all serve as the materials of an analysis which I am now preparing for publication in conjunction with my friend M. RUFZ, Interne of the Hopital des Enfants Malades, and with the facts which he has himself collected they will form a mass of some extent. Every case is very far from answering all the questions which merit attention, but all present a more or less considerable number of symptoms; we have strictly confined ourselves to the original notes, and the analysis of each symptom is founded exclusively upon those cases in which its *presence* or *absence* is distinctly mentioned. We have no hope of offering a complete treatise upon measles, but we believe that a memoir of this kind will furnish more precise data upon the complications and pathology of the disease than a general treatise would have done. Facts must always have a certain value, and the smallest addition to the truths furnished by observation will add something to the science. Besides, the time of theories is past, the necessity of positive knowledge founded upon laborious observation is felt, and the only writings adapted to the wants of the period are such as are rigorously confined to facts.

The observations which follow are amongst the most interesting I possess, and of course offer instances of the disease which are either extremely grave or complicated with some other affection; it would be both fatiguing and un instructive to relate cases of measles which are constantly occurring in the practice of all physicians. The great advantage presented by a large hospital like that of the Enfants Malades is the facility with which symptoms may be compared with the changes observed after death, and the pathology of children rendered more clear by the abundant means of anatomical investigations.

The three following observations from a group, which we class together from the similarity of their symptoms and anatomical characters; in the same manner the most important cases will be classed in order to elucidate the pathology of rubeola.

Observation I.—A boy, eight years of age, entered the ward St. Jean, the 15th November, 1832; bed No. 13. Service of M. BOUNEAU. He was born at Paris, is of a robust constitution, hair brown, not scrofulous; not vaccinated. Intelligence too obtuse to furnish any

information. His mother stated to the sister of the ward that the eruption had appeared the day previously, preceded by cough and pain in the throat. He is habitually constipated. On the evening of the 15th the eruption was general, skin hot, pulse 116; respiration strong and noisy, but without rhonchus; hoarseness; dry, hoarse cough with pain in the throat. Four leeches to the throat.

16th, morning.—*Present condition.* Irregular semicircular red spots a line or more in diameter, slightly elevated and discrete over the forehead; the rest of the face, especially the left cheek, is so much injected that the spots are indistinct—the redness is not regularly circumscribed; eyes red and weeping; sleep natural; senses and intelligence obtuse, but correct; no cephalalgia; eruption on the breast and abdomen very abundant, but more irregular than on the face—equally well marked upon the extremities, perhaps a little more upon the thighs than elsewhere; tongue deep red at its extremity, whitish, dotted with red papillæ in the rest of its extent; pain in throat not increased, referred to the larynx; voice extremely hoarse; redness and moderate tumefaction of the fauces, without false membranes; abdomen tense and developed, but not tympanitic; no evacuation; heat moderate; pulse full, regular, 100; respiration regular; 24 inspirations; mucous rhonchus general on both sides of the chest; percussion perfectly sonorous. Four leeches to the throat; poultices with vinegar to the feet; gum julep; infusion of mallows with acetat. ammon. ʒij.; diet.

17th. Vomiting, without having eaten or drunk recently, of mucous flocculi in an aqueous liquid; one dejection; pulse 100 in the morning, 120 in the evening; cerebral function same state; respiration 30, heard at a distance, rather irregular, still offering mucous and sibilant rhonchi on both sides of the chest, especially the left; percussion sonorous. The eruption has assumed a deep claret colour on the abdomen and thighs; this colour is much less intense on the rest of the body. Cataplasms to abdomen and feet; infusion of mallows. The vomitings were renewed several times in the course of the 17th and 18th, the liquid assuming a greenish colour, and always mingled with mucous flocculi. Eight leeches to the epigastrium the 18th.

19th. Leeches bled freely. Vomiting renewed in the night; somnolence; face generally injected; livid colour of the eruption diminished; conjunctivæ much injected with copious purulent secretion; heat elevated; nostrils slightly dilated; lips dry and deep red colour; mouth half open; decubitus always dorsal; pain in the throat felt only in coughing; voice stifled rather than hoarse; tongue very red at the

point, whitish at the centre with some red spots free from the coating; no change in the fauces; cough dry; no expectoration; respiration 36, irregular, interrupted by the frequency of the cough; pulse 120; percussion sonorous; respiration noisy on both sides, vesicular expansion feeble, a little mucous rhonchus at the end of the inspirations; thirst; anorexia; constipation. Continue prescriptions.

The livid colour of the spots disappeared on the 20th, and was replaced by a pale-red tint; they were no longer visible on the face the 21st, and very pale on the rest of the body; a slight fufuraceous desquamation existed on the arms. The stupor noted at his entrance increased daily; the 20th the patient was delirious, leaving his bed several times in the day; on the same evening (20th) we found him in a state of profound coma, with rattling stertorous respiration; the redness of the face rather diminished than augmented. The delirium returned in the night of the 20th to 21st. The child rose from his bed, and talked much in an incoherent manner. Coma in the intervals of the delirium, answers unintelligibly, and obtained only by speaking to him in a very loud voice; on the 22d delirium alternating with profound coma; no replies; slight subsultus of the tendons of the forearm with a little floccilation; pupils always natural; decubitus at first natural, afterwards abandoned. The redness of the conjunctivæ augmented from his entrance; their secretion became purulent on the 19th. The mucous secretion of the nasal cavities was replaced by an abundant purulent discharge the 21st. The lips were always dry, red, and swollen; tongue covered with a thick coating of viscid mucus the 20th, redness of the edges increased. On the 21st and 22d the mucus became drier, more abundant and brownish. The fauces could not be examined after the 20th, up to that date they presented the same appearance as on the previous days; voice always very hoarse; the pulse varied between 100 and 124 pulsations per minute, but rose the 21st and 22d to 164 and 180, it was always regular, full and strong at the beginning of the disease, small but quick towards the termination; the respiration augmented in frequency from 24 to 36, never more frequent excepting in the evening of 20th during profound coma and threatened suffocation, regular, and not elevated at the earlier periods, it became high, irregular, and stertorous afterwards; the nostrils were never much dilated in the inspirations; the percussion of the chest was sonorous to the 20th, after that date the feebleness of the patient rendered it impossible; the respiration was always loud, without very marked vesicular expansion, it seemed *stified*, and was mingled with more or less abundant mucous rhonchus every day excepting that of his admission. These charac-

ters after the 20th could only be established in the anterior part of the chest. The appetite was wanting on the 19th, the only day on which it could be ascertained with certainty. Thirst always intense; deglutition easy until the supervention of coma; skin hot and dry; diarrhœa supervened the 20th, five to ten liquid stools daily; abdomen always distended, but not evidently tympanitic until the 20th and the following days, at first not painful on pressure; after the first days the stupor rendered this symptom difficult to establish: pain in the throat was complained of upon coughing, but was soon rendered inappreciable from the coma.

Treatment.—Three applications of leeches to the throat, epigastrium and anus, in all eighteen, produced no effect on the progress of the disease. A bleeding of ℥viij. on the 21st during the coma, was followed by a sudden increase of the feebleness without other results. On the 22d three scarified cups were applied to the anterior part of the chest, and blisters to each leg; an infusion of mallows with acetate of ammonia, ℥ij. was given as his ordinary drink. Opiate enemata were ordered during the diarrhœa. On the 23d during the visit, he presented no new symptom, a few minutes afterwards on approaching his bed to examine him more closely, I found that he was dead.

Autopsy, November 24th, 1832, twenty-four hours after death.—Skeleton well formed, subject robust, adipose tissue abundant, violet-coloured ecchymosis on posterior parts of the trunk. Marks of two blisters on the thighs. Rigidity of the body considerable.

Mouth and fauces, teeth and point of the tongue encrusted with blackish, dry mucosities; the hard and soft palate, uvula and tonsils are covered with a purulent coating half a line thick, yellowish and almost as consistent as a false membrane; its free surface is irregular, it adheres strongly, and when detached the mucous tissue is evidently red and swollen, adhering strongly to the cellular tissue, but not apparently softened. The same purulent matter extends into the nasal cavities, (which we could not examine,) and exists at both their anterior and posterior openings. *Pharynx* lined with the same matter, which ceases abruptly at its base, the mucous tissue is of the same aspect as in the mouth. *Œsophagus* pale, with its epithelium intact, follicles not developed. *Epiglottis* covered with the same substance, excepting its superior border which is red, swollen, at first sight resembling an ulceration, mucous membrane intact. *Larynx* contracted, uniformly lined by the purulent matter, ceasing abruptly a line below the ventricles which are filled with solidified pus, and scarcely visible. The mucous membrane is of a deep red

colour, thickened, but not softened. *Trachea* of an intense amaranth redness, presenting at its anterior and lateral part on the right side, a long and irregular false membranous patch, beginning a little below the larynx, and terminating near the bifurcation of the trachea; other patches, but much smaller like little islands exist near it; the layer is softer and less adherent than in the larynx; mucous tissue of the same colour as in the rest of the trachea. *Bronchiæ* red, the left much less than the right, on the latter side they present a few yellowish patches not strongly adherent; the mucous membrane thickened, but not evidently softened. Puriform mucosities very abundant in all the bronchial ramifications. *Bronchial glands* rather larger than usual, red and a little softened. *Pleuræ* non-adherent, containing almost no serosity. *Left lung* reddish in its anterior part, brownish-red posteriorly, yielding an abundance of reddish, spumous serosity, but throughout soft and permeable to the air. *Right lung* of the same aspect as the left, except at the posterior part of the base of the lower lobe, where there are some lobules of a deep red colour, more intense than that of the surrounding tissue, not permeable but friable. A little cretaceous matter is contained in a cyst near the root of the right lung in its parenchyma; no tubercles found. Pericardium contains two or three drachms of lemon-coloured serosity. Heart larger than the fist of the subject, the left ventricle four lines thick at its middle, the right a line and a half. Tissue firm and very red, a large fibrinous coagulum in the right cavities, a little liquid blood in the left; the large vessels contain much liquid blood; membrane pale.

Stomach contracted, presenting some viscid mucus on its anterior face, very little elsewhere. Mucous membrane rose-coloured and yellowish, with some little patches of dotted redness on its anterior face; mamillated in the large curvature. Thickness normal, consistence good, strips four lines in the large cul-de-sac, more than six on the faces, and from one to two inches in the small curvature. *Small intestine* moderately distended, containing a yellowish and rather liquid matter. Mucous membrane every where pale, except in the two last feet, where there are some arborizations. Consistence normal, except near the valve where it is a little diminished. Agglomerated follicles scarcely prominent, not dotted with blue, pale, of the ordinary reticulated appearance. Isolated follicles very rare; *mesenteric glands* gray, very firm, of ordinary size. *Large intestine* tympanitic, a greenish matter less fluid than in the small intestine. Cæcum grayish, almost of a slate colour, with one large vascular ramification; membrane yields no strips, a slight scraping reducing it

into a pulp; it is more consistent at the beginning of the transverse colon, and in the rest of the intestine it is marked with some reddish longitudinal patches of a bright dotted redness, and becomes as soft as in the cœcum. Follicles visible, but not prominent. *Liver* voluminous, of a pale brownish-red, greasing the scalpel a little; bile abundant and very pale. *Spleen* voluminous, four inches and a half in length; tissue of a dirty-red colour, soft, a slight pressure reducing it to a pulp. *Kidneys* pale; *bladder* pale, containing a little urine.

Head, blood flows abundantly from the exterior of the dura mater. Pia mater much injected, very little serosity beneath the arachnoid, a few drops in the ventricles; cortical substance of the usual grayish colour, slightly rose-coloured; medullary portion dotted with red points, consistence excellent; cerebellum, medulla oblongata and annular protuberance without appreciable lesion.

This observation is an example of measles occurring in a healthy boy, assuming a character of gravity at a very early period, and terminating fatally early on the tenth day of the eruption. The cause of death is sufficiently evident from the intense inflammation of the mucous membrane of the air passages, which resisted the treatment resorted to, and finally produced death by sudden suffocation. What are the symptoms of this secondary lesion? coma, intense dyspnœa, high, irregular, and even stertorous, but not very frequent respiration. The sonoriety of the chest, and the peculiar character of the respiration which was not at all bronchial, but stifled as if the air dilated the vesicles but imperfectly, and mingled with bronchial rales, distinguish it from pneumonia. This *stifled* character which occurs very frequently in measles, and even in some cases of ordinary bronchitis, merits attention; and when existing in an intense degree, is strong evidence of violent bronchial inflammation, or at least engorgement of the lungs. In connexion with variety of morbid respiration, the sonoriety of the chest may be a little diminished, but the diminution is then general or nearly so, and can scarcely be confounded with the flatness afforded by percussion over a hepatized lung. The only other lesion of importance was the softening and almost complete disorganization of the mucous membrane of the large intestine.

Observation II.—Alexandre, æt. 10, entered ward St. Jean the 3d April, 1833. Service of M. Guersent. Born at Paris, living in the Rue de Serres, 10th arrondissement, (a well-ventilated quarter.) Of fifteen children there remain but two, himself, (the 13th,) and a younger brother. The others died very young, one only having reached the age of two years. He was vaccinated, has never been ill, and is not subject to cough. On the 26th March he was taken with cough

and cephalalgia, he complained also of pain or oppression at the epigastrium.

27th. Persistence of the symptoms with cough and frequent sneezing; anorexia from the beginning, but neither chill, vomiting, nor diarrhœa.

28th. Eruption of measles, and diarrhœa for the first time. The eruption continued, with very mild general symptoms until the 31st, when he was attacked with severe pain in the breast and abdomen, intense dyspnœa, and difficult, noisy respiration; this sudden exacerbation of the symptoms occurred while in bed without previous exposure to cold.

April 1st.—He was bled without diminution of the symptoms, which retained their intensity until his admission. His mother pretends that the eruption had become much paler on the 1st, the change of colour taking place in a few hours, but a doubt remained on this part of her narrative.

On the evening of the 3d April, dyspnœa extreme; respiration elevated with intense dilatation of the nostrils, 52 inspirations; pulse very frequent; skin very hot and dry; expression of the countenance anxious; eruption visible, but very pale.

4th, 8 A. M. Present condition. Complexion fair; hair blond; eyes blue, brilliant, but not injected; no traces of enlarged ganglia or cicatrices at the neck, nor other marks of scrofulous affections; no emaciation; skeleton well formed; lips swollen, pale livid-red, dry; nostrils strongly dilated at each inspiration; no coryza; face in general highly coloured, the redness not in defined patches: a few of the characteristic spots of measles, of an irregular semicircular form, not elevated, very discrete, exist on the face, they are rather more numerous and of the same pale rose colour on the upper extremities, still paler and less defined on the trunk and inferior extremities; cephalalgia referred to the forehead; sight clear; ringing in both ears; drowsiness, almost stupor; decubitus dorsal; the knees elevated, with constant tendency to sink towards the foot of the bed; feebleness extreme, aphonia nearly complete; cough loose, moderately frequent; no expectoration; respiration high, irregular, 50 inspirations; pulse quick, strong, regular, 136; heat of skin very elevated; percussion obscure generally on both sides of the chest posteriorly, with no sensible difference; sub-crepitant rhonchus at the base of both lungs, in the rest of their extent inspiration not fully expansive but pure;* an-

* This character of the respiration is frequently met with in children. I am in the habit of designating it in my notes as “soufflante;” it is difficult to find a corresponding English term. It is entirely different from the tubal bronchial respiration.

teriorly, percussion sonorous on both sides, if there be a difference a little less on the right than the left; respiration on the left side perfectly pure and natural, on the right it is a little less expansive and mingled with mucous rhonchus; pain in the throat, a little augmented by deglutition; redness and slight tumefaction of the fauces generally, without false membranes; thirst intense; he asks for food; no dejections since his entrance; abdomen yielding, slightly tender on pressure generally. Venesection, \mathfrak{Z} viiij.; two blisters to thighs; gum linctus with gr. v. Kermes; infus. malvæ.

5 *P. M.* The blood drawn the morning offered a large coagulum—the first cupful covered with a thin buff; pulse 180, quick, but more feeble; respiration irregular, varying from 40 to 60; oppression and heat intense.

5th, 8½ *A. M.* Eruption scarcely visible; face generally injected; lips intensely red and swollen; decubitus dorsal; nostrils dilated at each inspiration; same state of senses and cerebral functions; aphonia almost complete; feebleness extreme, but he supported the bleeding of yesterday well; heat elevated; respiration precipitated, irregular, 45; pulse 135, small, regular, not developed; pain in the throat, slight even in deglutition; tongue intense purple on the edges, grayish in the rest of its surface; abdomen yielding, but painful; the child asks for food repeatedly; thirst; subcrepitant rhonchus in the whole anterior part of the right lung, perhaps more marked near the summit than the base; respiration natural in the left lung, except a slight subcrepitant rhonchus at the lower part; percussion sonorous on both sides, perhaps a little less on the right; posteriorly subcrepitus and mucous rhonchus at the base of both lungs; respiration feeble, but without expiration, and not at all bronchial in the upper part of both lungs; percussion not changed; pulsations of the heart offer nothing remarkable but their frequency. Venesection, \mathfrak{Z} viiij.; repeat Kermes; cataplasms with vinegar to the ankles.

6 *P. M.* Stupor increased; decubitus elevated dorsal; face injected; heat increased; pulse 156, quick; respiration 68, less elevated; both pulse and respiration increased in frequency since the bleeding, which was performed at 4 *P. M.*

6th. Decubitus dorsal abandoned; expression of anguish strongly marked; lips paler; pupils natural, eyes dull; feebleness extreme; face livid, pale; heat intense; thirst; aphonia continues; dyspnœa excessive; respiration 52, very irregular, with mucous rattle heard at a distance, each inspiration accompanied with great dilatation of the nostrils; pulse 152, without particular character; no diarrhœa; feebleness prevents auscultation; blood presents a buffy coat. Teeth slight-

ly encrusted; tongue continues swollen, of pale-rose colour at the edges, grayish at the centre. Potion, with gr. vj. tart. emet., ℥ij. syrup of opium in ℥ix. vehicle. ℥ss. q. h. Infusion of mallows.

5 *P. M.* Pulse feeble, rather irregular, difficult to count, between 160 and 170; respiration 45, very elevated; each inspiration attended with a general tremulous movement of the body.

Death the 7th, at 3 A. M. without vomiting or dejections, although he had taken the whole of his draught.

Autopsy, the 8th, at 9 A. M.—Exterior. Rigidity of all the limbs; hands and feet slightly contracted; lividity of the posterior part of the body and interior of the thighs; slight greenish colour of the lower part of the abdomen; some scattered reddish spots are still visible on the hands and arms, the greater part resembling the pricks of pins; muscles highly coloured; no œdema, and moderate embonpoint.

Head. Little blood on the exterior of the dura mater; a small, fibrinous coagulum at the posterior part of the longitudinal sinus; no serosity beneath the arachnoid or in its cavity; the pia mater can be easily detached from the convolutions without destroying them; pia mater generally a little injected; cortical substance of a dark-grayish colour, (like that of coffee diluted with much milk;) medullary substance generally of a violet tinge, and a little dotted with red points; a tea-spoonful of serosity in each lateral ventricle; substance of the brain, including the central portions, firm; cerebellum, medulla oblongata, and annular protuberance firm, pale.

Mouth and throat. *Tonsils* a little injected, not evidently swollen, covered with a slight coating of mucus. *Pharynx* and *œsophagus* of a light rose colour; the follicles but little developed. *Larynx*, and epiglottis on its posterior face, present numerous little, rounded elevations, about half the size of mustard seeds, apparently follicles; each of these little elevations offers a yellowish point nearly as large as a pin's head, formed of a pseudo-membranous production, which seems a secretion from the follicles, to which it adheres but slightly. The mucous membrane in general is of a deep red or lake colour; the vocal cords a little thickened, and the cavity of the ventricles evidently diminished; the thickening extends to the whole membrane. The trachea is of the same deep red colour, and presents upon its whole surface, especially posteriorly, the same follicles with the yellowish secretion adhering to them; their central point cannot be distinctly seen. The bronchia of the left side are of nearly as deep a red colour as the trachea, but without distinct follicles; those of the right side are also red, but of a much less intense colour than the left, the mucous membrane retaining its natural transparence, while

on the left side it is much more opaque than natural, and seems thickened, although firm, and resisting the scraping with the point of a scalpel. The mucous membrane of the trachea is of very good consistence, yielding a strip between twenty and twenty-four lines in length. The bronchia, especially the left, contain an abundance of yellowish mucus.

Lungs not adherent; a little lemon-coloured serosity in each pleura. *Right lung* of a fawn colour, a little violet in its upper lobe; the vesicles of the summit uniformly dilated, of a diameter of about one-tenth or one-twelfth of a line, so that the summit of this lung forms a rounded protuberance very crepitant and distended with air. Middle lobe of a violet-fawn colour, without manifest dilatation of the vesicles; inferior lobe of the same hue, a little reddish in its inferior and posterior part. *Left lung* of a deeper rose colour than the right in both its upper and lower lobes; this tint is only deep rose colour in the upper lobe both exteriorly and interiorly, whilst the lower lobe is of a deep red colour, containing an abundance of reddish, spumous serosity, and more friable than the upper lobe, approaching the appearance of lobular pneumonia, but still floating in water. Bronchial glands of a livid blue, very voluminous, the largest situated at the bifurcation of the trachea is of the size of a small walnut and soft; like the lungs, they contain *no* tuberculous matter.

Stomach neither distended nor contracted, containing the tisane he had taken. Mucous membrane of a pale grayish blue colour, shaded with yellowish bands which cross each other in every direction. A few little patches of bright dotted redness, three or four lines in extent, are found along the small curvature. The opaque milky tint of the mucous membrane is general, but more marked in the large cul-de-sac than elsewhere. The consistence of the membrane is a little diminished, thus although the strips are of the usual length, (three or four lines in large tuberosity, six or seven in the large curvature, and more than an inch in the small,) yet they are brittle, and can only be detached by using great precaution. The general thickness of the membrane is perhaps a little increased, it presents an abundance of little depressions one to two or three lines in diameter, thickly scattered over the whole surface, in general rounded, some longer and more narrow, the edges are not elevated, and the whole depression presents the same colour as the surrounding membrane. The mucous membrane exists in all, but is very thin in some of them; the sub-mucous tissue is not rejected or affected. *Small intestine* a little distended, containing a yellowish matter and four lumbrici near the end. The mucous membrane is every where pale,

and yields strips of the usual length, (six to eight lines.) Twenty-one agglomerated glands of Peyer, they present their normal appearance, reticulated and covered with bluish points, (the orifices of the follicles.) Isolated follicles very numerous, and marked with a central point in the duodenum, not visible afterwards, except in the last one or two feet. *Mesenteric glands* bluish, rather swollen, of good consistence. *Large intestine* containing softened fecal matter, not distended; mucous membrane pale, excepting one or two reddish patches an inch or two long in the transverse colon, the mucous membrane a little less consistent than usual, strips of but four to eight lines, except in the rectum where they are rather longer. Follicles little developed. *Liver* of a bluish tint, engorged with blood, not fatty. Bile abundant. *Spleen* reddish, firm. *Kidneys* pale. *Bladder* pale.

Heart contains a firm fibrinous coagulum in the right cavities, one smaller in the left: its volume is about one-half larger than the fist of the subject, tissue firm, of a deep red colour; thickness of the left ventricle at its middle, without including the columnæ carneæ four lines, of the right a line and a half.

The analogy presented between this case and the preceding is obvious, the same lesion existing as the cause of death in both, but the purulent secretion which was found in a large extent of the respiratory passages of the other subject, is here confined to some little points adherent to the follicles, and resembling the forming stage of false membranes in the large intestines of children. In short, the lesions are evidently identical, and indicated by symptoms offering few points of difference. The treatment in this case was more vigorous than in the preceding, but the three bleedings produced no diminution of the dyspnœa, and seemed in no manner to retard the fatal termination. The lesion of the stomach described is frequent among children; and by the disciples of the physiological school would doubtless have been referred in part at least to the antimonial preparations which the child had taken; but as the only mode of ascertaining the influence of this remedy in producing such a lesion, is to compare its frequency in the subjects who had been treated by the administration of tartar emetic, with the cases in which no active medicine had been directed, we think it would be premature to hazard such an opinion.

Observation III.—A little girl, six years of age, belonging to a family of poor Auvergnats, who were compelled from poverty to place her at the hospital; she had been in the ward St. Catharine during some time, and at the moment her disease commenced, was discharged

from the hospital, but allowed to remain there a few days until her parents could procure for her the means of livelihood. Her health was perfect, complexion florid, embonpoint marked. An eruption of measles characterized by the usual cherry red spots of the ordinary form, appearing on the 11th January, 1833; preceded by vomiting, cough, and sneezing, during the two previous days.

12th. Sudden disappearance of the eruption, and extreme dyspnœa.

13th. Face livid; redness in large rounded patches on each cheek; respiration irregular, very high, between 50 and 60; pulse 165; heat intense; decubitus dorsal; dyspnœa extreme. On placing the ear for a moment on the chest, the respiration could still be distinguished, mingled with rhonchus. An attempt was made to bleed her, but the vein yielded only about Țij. of blood. Death in the night.

Autopsy, 15th, thirty-four hours after death.—Exterior pale, some livid spots on the posterior parts of the body; no infiltration; skeleton perfectly well formed. Head not examined.

Thorax; slight adherences at the base of the left lung; upper lobes of both lungs rose fawn colour; their tissue is soft, perfectly permeable to the air, and contain but little serosity, and no tubercles. The middle and lower lobes of the right, and lower lobe of the left lung are of a brighter rose colour anteriorly, and reddish posteriorly, containing reddish spumous serosity, but not very abundant, but light, soft, permeable, floating in water, in short, slightly congested with blood; œsophagus and pharynx pale; larynx slightly red; trachea and bronchia of a general livid red tint without, thickening or bright viscid redness, containing a moderate quantity of mucus.

Heart, a few tea-spoonfuls of lemon coloured serosity in the pericardium; right ventricle and auricle distended by a large blackish coagulum; very little blood in the left cavities; aorta and large vessels pale.

Stomach contracted, containing some whitish mucus; mucous membrane pale, slightly rose, with some large vascular ramifications on each side of the small curvature; not mammillated, of natural thickness and consistence. *Small intestine* contained one lumbricus and a little mucus. From twenty to twenty-five grayish agglomerated glands of Peyer, very little elevated, some dotted with blue points; isolated follicles numerous in the duodenum, and towards the end of the intestine. *Large intestine* containing fecal matter; mucous membrane grayish, transparent, yielding strips eight or ten lines in length; follicles not visible; *liver* gorged with blood; *spleen* reddish, brown, firm; *kidneys* a little livid.

This short note does not merit the title of an observation. The

case occurred in a ward in which I was not engaged in observation, and was noted on account of its violence. The lesion seems to have been of the same nature as in the preceding observations; the only anatomical alteration was the redness of the trachea and bronchia, occurring in another subject; little importance would have been attached to this lesion, but in this case the symptoms were precisely analogous to those remarked in the other cases, and is not in accordance with strict reasoning to conclude, that the short duration of the disease will sufficiently explain the trifling lesions found after death.

ART. III. *Practical Observations relative to the Use of Sulphate of Quinine in Febrile Affections.* By J. W. MONETT, M. D. of Washington, Miss.

THE sulphate of quinine, and the sulphate of cinchonine, although similar in qualities, and derivable from the same source, are so different in their therapeutic effects upon the human system, that I shall *not* consider them as identical or synonymous in the following remarks. The common quinine of pharmacy contains the active *febrifuge* or *contra-stimulant* property, and the *cinchonine*, most probably, the *tonic* principle of the cinch. offic. My experience being confined to the sulphate of quinine, I shall of course restrict my remarks to that substance, with only a passing observation relative to the sulphate of cinchonia. This latter I have said most probably contains the tonic properties of the bark, as the quinine does the febrifuge. This remark is in part founded upon the authority of M. BALLY, who has made extensive trials of both. He prefers the cinchonine as being less *irritating* than the quinine. This irritating quality which he ascribes to the quinine, I hope, in the course of these observations, to show, is the result of its febrifuge and contra-stimulant properties, *especially when administered in improper cases*. Future experience may show, that there is one class of febrile diseases in which the quinine is the proper remedy; and another class in which it is decidedly injurious, and in which the cinchonine will be salutary and proper.

It is now generally admitted, that the gray, or Loxa bark, contains the cinchonia; the yellow, or Calisaya bark, the quinia; and the red bark contains both in large quantities. This latter circumstance will account, on the principles set forth in this paper, why the red bark is so much preferable in protracted intermittents from debility, as it possesses largely both the *tonic* and the *febrifuge* essence.

Nothing requires closer observation and nicer discrimination, for useful practical purposes, than the introduction of new remedies into practice, or new articles into the materia medica. Although an article may be introduced, by general acclamation, as a new remedy, or as a substitute for those already in use; yet it not unfrequently happens that such article continues to be long estimated and used, with all the prejudiced views and want of discrimination with which it was proclaimed and adopted. Nor is it to be expected, under such circumstances, that its administration will be confined to those particular cases solely, in which it is salutary and proper. Its prejudicial effects, even in those cases where it is decidedly injurious, will scarcely be observed, or properly estimated: for the advocates of a favourite article, blinded by their prepossessions will erroneously attribute its deleterious effects to the ravages of the disease they design it to cure.

I consider these remarks in point, and applicable especially to the sulphate of quinine. It has been generally introduced into practice, and by many of the profession, with a kind of idolatry, (too often seen in medical men,) not only as a substitute for the Peruvian bark, but also for almost every other class of medicines. The extent of the deleterious consequences, from an improper use of this article, are not clearly ascertained, because the whole testimony is prejudiced in favour of the medicine.

As it is my object in the following observations to lay down and establish a true principle for the safe and salutary exhibition of quinine, I shall endeavour to draw a line of discrimination, and show the state of the system when it is, or is not proper. It will thus be seen that the condition of the system applicable to the use of quinine is the reverse of that in which the bark is indicated; and that instead of superceding the bark, it is only another auxiliary in the treatment of fevers.

The *bark* having been used in all cases of remittent and intermittent fevers indiscriminately, must necessarily have failed to cure those cases in which its use was improper. The same result will obtain from a similar use of quinine. The *bark* is *improper and pernicious* in all cases characterized by general increased arterial tone and action; or in fevers consequent upon local inflammation or engorgement, and where the tone of the system is unimpaired. If administered in such cases it will certainly disappoint expectation. The best Peruvian bark possesses a tonic and a febrifuge property combined. This combination of properties adapts it peculiarly to cases of fevers and febrile affections based upon an *asthenic diathesis*. This circum-

stance, in all cases, should form the criterion for its use, whatever be the name of the disease or its external character. The same property which adapts the bark to this class of diseases, renders it in the same degree pernicious in those of an opposite character.

The *quinine* is salutary and proper, as a remedial agent, in cases the reverse of those in which the bark is applicable. The quinine, which has been erroneously supposed to contain the whole tonic property of the bark, is in fact its *febrifuge* essence uncombined and *without any tonic property whatever*. Thus, when quinine is improperly given, its pernicious effects are much more aggravated than those resulting from an improper use of the bark. For in the latter the febrifuge in some degree counteracts the tonic property, and *vice versa*: besides, the improper cases for bark, are those states in which the system is unimpaired by debility, and can withstand a temporary error without serious injury. On the other hand, the quinine exerts its febrifuge powers *by directly diminishing the force* and tone of the arterial system, and is injurious only in those cases where the asthenic diathesis prevails. In such cases, with an impaired state of the constitutional powers, atony in the circulating system, and all the train of rapid and fatal symptoms attendant upon adynamic fevers, even a temporary diminution of the powers of life cannot be sustained without the most imminent hazard. When used in these cases, quinine, unlike digitalis, tart. ant., &c. instead of diminishing the force and frequency of the arterial pulsations, diminishes their force, but *increases their frequency*, together with all the signs of irritable debility. This is what M. Bally means by its irritating property; and this is what others have *erroneously considered its stimulant effects*. For while quinine acts as a febrifuge and contra-stimulant in sthenic diseases, it produces the highest grade of irritable excitement in those of direct debility.

But in cases of open excitement, in vigorous constitutions, the quinine may be used advantageously in most of those cases of autumnal remittents and intermittents, in which tartarized antimony, digitalis, pulv. ipecac. c., saline diaphoretics, and medicines of that class might be safely employed. In such cases the system will not unfrequently bear large doses of quinine without any visible effect; as is likewise often the case with tart. ant. and other medicines. *But it cannot be otherwise than pernicious in all asthenic cases*; and I consider highly preposterous an attempt to make it supercede many of our valuable remedies in the treatment of summer and autumnal fevers, especially in this climate and latitude, where most of our summer and autumnal diseases originate in the debilitating and relaxing effects of heat.

It is truly a matter of astonishment, that this article should have been forced so extensively into the southern practice, where diseases, especially summer and autumnal fevers, are least adapted to its use. Yet such is the force of habit and preconceived notions in medicine, as in every thing else, that too often they usurp the province of judgment and discrimination; and medicines are often administered in certain cases, only because we have been in the habit of prescribing them in others. And thus it is with calomel and quinine. I doubt whether mercury itself, in so short a period, has ever produced more pernicious effects than quinine. The effects of the former are known and visible to all; it is therefore given with caution. The latter, under the misguided notion of its tonic and stimulant properties, is administered in the most improper cases; while all its pernicious effects are reckoned only so many symptoms of a disease, which it is most unquestionably to cure. The more alarming these symptoms are, the more the pernicious article is pressed upon the patient, aggravating every alarming symptom, until the unfortunate victim is pressed into the grave; the price of being cured *secundum artem* by quinine! I have often been called to see patients whose case was considered hopeless, where the disease was protracted into that state solely by the use of quinine, and where the only important indication towards effecting a cure was the discontinuance of *the medicine*. I have seen physicians use the *sul. quiniæ*, without any fixed rule, or any definite views relative to its *modus operandi*, in all cases and in all stages and varieties of fever indiscriminately, like a charm or enchanted dose, which is to adapt itself to every peculiarity of case, and to effect wonders they know not how. Even in this manner it cannot always fail. Some cases will happen to be proper, and the effects favourable. This will cause it to be given again in twenty improper cases. So egregiously are its pernicious effects overlooked or misconceived, that not unfrequently the most decided evidence of its pernicious effects, such as tinnitus aurium, deafness, vertigo, strabismus, cephalalgia, nausea, and vomiting, are construed into criteria for its administration, and as indicative of its salutary effects. Effects these, which I do not hesitate to denounce, as certain indications of its improper use, either as relates to the case, or the quantity administered.

The sulphate of quinine, I repeat, is a valuable febrifuge and counter-stimulant, and is not in any sense a tonic. Yet its febrifuge effects may be obtained without injury from its counter-stimulant properties, even in slight cases of asthenic fever, or its action may be so modified by a judicious combination of aromatic stimulants and opiates, that in cases of moderate asthenia, no detriment will be sus-

tained from its contra-stimulant properties. In this respect it bears a strong reverse analogy with camphor. The quinine being contra-stimulant, requires its action to be guarded by capsicum, camphor, and opium. Camphor, on the other hand, being stimulant, requires the addition of antimonials and other contra-stimulant diaphoretics, to adapt it to cases in which it would otherwise be inadmissible. However, *quinine should not be used in any manner in simple debility unattended with fever.* The danger lies in administering quinine in cases attended with a cool, relaxed skin, and general diminution of tone and action. There must be febrile action, or quinine is injurious under any combination.

It may be laid down as a general rule, to which there will be but few exceptions, that the *sul. quiniæ*, as a remedy, is admissible only in persons of strong athletic habits, of sanguineous or bilious temperaments, and whose systems are not debilitated by previous protracted disease, and in those who are temperate and free from any constitutional irritability. Diseases supervening upon such constitutions and habits, will be mostly those of direct excitement, and which may in some stage be treated with quinine. The quinine, however, is contra-indicated in all individuals of lax fibre, and feeble circulation; in leucophlegmatic and nervous temperaments,* attended with torpor in the absorbent system, and with adipose depositions. In these constitutions and habits, diseases usually in this latitude assume the asthenic character, especially summer and autumnal fevers, and constitutional derangements consequent upon them.

It may not be superfluous to be more particular in specifying those diseases in which *the sulphate of quinine is pernicious.* They are chronic debility from whatever cause; want of tone in the ultimate fibre, with defective energy, mental and corporeal; disorders consecutive of weak or irregular, defective or increased action in the abdominal viscera. The external evidences of such cases are pale skin, sallow complexion; feeble and quick pulse, or weak and sluggish; pale or ash-coloured tongue, not furred; clear white sclerotica; mental lethargy, and aversion to bodily exertion; irregular biliary discharges, sometimes deficient, often profuse, thin and yellow: in extreme cases of irritable debility, there is a tendency to syncope in a sitting or erect posture, throbbing in the head, tinnitus aurium, palpitation and vertigo. Quinine aggravates every one of these symptoms. It is

* M. Bland, in the summer of 1825, observed deafness and other symptoms of cerebral congestion, &c. produced by large doses of quinine. This he observed chiefly in persons of *tall and slender make, and of nervous temperaments.*—*Amer. Journ. of Med. Sciences, No. II.*

improper in violent congestive fever, with cerebral congestion, and in the collapsed stage of common, remittent, malignant, and typhus fevers. In any and all cases of these, quinine, as it is generally administered, *never fails, even in small doses, to induce a quicker and more irritable pulse, thirst, and cerebral congestion*, and a train of unfavourable symptoms. These, which are aggravated by each dose of quinine, are readily relieved by wine or toddy, aromatic cordials, camphor, ammonia, and opiates.

Another disease, whose course has been most terrific in our own country, as well as elsewhere, is rapidly hurried on in its fatal termination by quinine. Those who have contracted a partiality for this article, have naturally enough conceived it peculiarly adapted to the cure of *malignant cholera*, (cholera asphyxia.) The *cholera* has uniformly exhibited the character and symptoms of a most malignant collapsed fever, and has always in my opinion required a liberal exhibition of aromatic stimulants, camphor, æther, and calomel. The most successful have been calomel, opium, camphor, and capsicum. If these articles be beneficial in their operation, and if quinine be a contra-stimulus, as it undoubtedly is, the impropriety of its use in this disease, however guarded by other combinations, is evident.

In the common *congestive* summer and autumnal fevers of this country, we are presented with an imperfect circulation; abdominal and thoracic congestions; pale, relaxed, and cold skin, sometimes covered with profuse cold sweat; pulse small, and almost imperceptible; cold extremities; impaired sensibility, and a general derangement of all the secernant functions. The vital energies are defective, or are at once depressed by the force of disease below the point of reaction; the whole system is, in fact, in a stage of collapse, from which nothing can rouse it, but the prompt use of the most powerful stimuli internally and externally. It is in fevers of this character, that quinine is too often freely used, under the erroneous impression that it is a stimulant and tonic. It only makes the fatal catastrophe more certain. If quinine, under any circumstance, be capable of removing congestion, it is only in vigorous constitutions, where the circulation is only partially oppressed, and where the external heat is not reduced below a normal state.

There are other cases likewise, in which quinine is pernicious. One is that peculiarly irritable and debilitated state of the whole animal functions most common in females, designated by the term *anemia*, (parops hæmatisis.) In cases of this kind, where corroborants and generous diet are essentially necessary, the judicious physician cannot administer quinine without speedily perceiving its per-

nicious tendency. In *gangrene* the *sul. quiniæ* is highly pernicious. I should not have supposed it necessary to name this as an improper case for quinine, had I not seen it recommended as a substitute for bark and wine in gangrenous inflammation in a most respectable work on surgery.* I do decidedly believe there is no disease in the whole range of nosology, in which the use of this article would be more pernicious than in extensive gangrenous inflammation.

I shall now make a few remarks relative to the use of quinine in those cases in which it is a safe and salutary remedy, especially in remittent and intermittent fevers; also a few remarks relative to its use in synochus fevers, or those which occur mostly during winter and spring.

1st. *Remittent fever*.—In fevers of this class, with regular remissions and exacerbations, strong vascular action, and in sound constitutions and sanguineous temperaments, after the necessary depletion and evacuation, the quinine will generally prove a valuable remedy. But until the excitement is in some degree reduced, and all offending matters removed from the *primæ viæ*, it is inadmissible. After this preparation, if the arterial excitement continue, the surface be dry, and above a healthy temperature, without any strong local determination, or active inflammation, and where the secretions, if obstructed, are so from over-excitement, the tongue coated with a *moist* white or brown fur, quinine may be given in full and frequent doses. In these cases the effects of the quinine may be much promoted by combining it with the *pulv. ipecac. c.* or *pulv. ant. or nit. pot.* as in the subjoined formulas;† to either of which calomel may be added, where there is defective secretion from the liver. In children, and in females of delicate constitutions, the quinine may be differently combined and exhibited.‡ In cases of remittent fever it is of parti-

* Principles of Surgery. By James Syme, F. R. S. E. &c.

† R. *Sul. quiniæ* - - - - - ℥ss.
Pulv. ant. - - - - - ℥ij.
Nit. pot. - - - - - ℥ij.

M. ft. *pulv. æq. No. 5*.—Unum quaque hora tertia sumend.
Vel.

R. *Sul. quiniæ* - - - - - ℥ss.
Pulv. Ip. comp. - - - - - ℥ij.

M. ft. *pulv. æq. No. 5*.—Un. quaq. hora. tertia sumend. in aliquo vehiculo.

‡ R. *Spt. æth. nit.* - - - - - f℥ss.
Aq. font. - - - - - f℥ss.
Sul. quiniæ - - - - - ℥j.
Vin. ant., elix. paregoric, and tinc. digital. āā - f℥ij.

M. ft. *mist. dose, f℥j.; ij. for adult.*

cular importance, that it should be administered previous to the remissions, it may be exhibited also during a remission, provided there be no tendency at such time towards prostration or collapse. In this manner the excitement of fever is more effectually controlled. But the quinine should be carefully withheld during collapse, or a tendency to it.

But it is necessary in treating these fevers to discriminate between those of an asthenic diathesis with *irritable* excitement, and those with increased force of vascular action. An error in judgment here produces a dangerous error in practice. As before observed, a large proportion of our summer and autumnal fevers are the result of the relaxing influence of protracted heat engendered in asthenic diathesis. Of this kind are those generally denominated, and which are really *bilious* fevers attended with an increased secretion and discharge of yellow bile, quick, irritable pulse, and excessive head-ache. The irritable state of the liver, and the drain through its increased discharges, tend to exhaust the vital forces to the extreme. In such cases, anodyne febrifuges, brandy toddy and opiates, are by far the most salutary remedies. Active counter-stimulant remedies tend further to impair the tone of the general system, and thereby to aggravate every symptom. Of all improper remedies, in such cases, I know none more pernicious than calomel and quinine.

In many of the milder cases of *congestive* fever, where the circulation is oppressed, but where the collapse is not complete, the quinine may be used with benefit, by correcting its contra-stimulant properties with camphor and aromatics. These are cases only where the heat of the surface *is not* below a healthy grade, and where no great cerebral or gastric disturbance exists. In such the quinine may be exhibited in the usual doses, combined as in the formulæ below;* and where the biliary secretion is defective calomel will be an indispensable auxiliary. Thus combined, the febrile action is reduced, the strength sustained, and the secretions opened, and the circulation developed. The same formulæ may be used beneficially in the latter

*	℞.	Sul. quiniæ	-	-	-	-	-	-	-	℥ss.
		Camph. p. vel. capsici, p.	-	-	-	-	-	-	-	grs. ij.
		Submur. hydr.	-	-	-	-	-	-	-	℥ij.

M. ft. pulv. æq. No. 5.—Unum quaque hora tertia. S.

Vel.

℞.	Sul. quiniæ	-	-	-	-	-	-	-	℥ss.
	Camph. pulv.	-	-	-	-	-	-	-	grs. vj.
	Submur. hydr.	-	-	-	-	-	-	-	℥ij.
	Oxyd. ant. cum. phos. calc.	-	-	-	-	-	-	-	℥j.

M. ft. pulv. æq. No. 5.—Unum quaque hora tertia. S.

stages of some cases of *typhus fever*, where the exhaustion or collapse is moderate. In simple febrile asthenia, of convalescence from summer and autumnal fever, quinine if administered, should be given in a little porter or wine and water. But in *convalescence* unattended with febrile action, quinine is unnecessary, and even pernicious. In such cases porter and wine are the best tonics.

There has been a great diversity of opinion among physicians relative to the proper *dose* of quinine. By some it is given in doses of from three to ten grains, and too often in every stage and variety of fever. My own opinion, formed from my experience, is, *that a larger dose than three grains is never necessary*; and frequently one or two grains, repeated every two or three hours will produce a more salutary effect than three. In any case of fever, wherein three grains will not produce a salutary effect, it may be taken for granted that ten will not. Something else is necessary. But whenever the quinine in any case produces tinnitus aurium, deafness, vertigo, and vomiting, be the dose what it may, it is too large, and is decidedly productive of injury: of course it should be discontinued.

2d. *Intermittents*.—The administration of this article in intermittent fevers, requires an observance of the same rules and principles which regulate the use of it in remittent and continued fevers. Intermittents are attended by the same diversity of condition of pulse and constitutional tone which attend other fevers, these are in one class of cases the languid and feeble pulse, pale skin, mental imbecility, tumefied abdominal viscera, leuco-phlegmatic temperament, and other signs of irregular or defective action; in the other, athletic constitutions, sanguineous temperaments, and all the signs of healthy vigorous action. Each requires a different plan of treatment. In the former the bark in substance, wine, aromatics, opiates, camphor, and chalybeates are requisite. Quinine may be used likewise, especially if combined with aromatic stimulants and opium, as in the subjoined formulas.* One of the pills may be taken every hour, or

* R.	Sul. quiniæ	-	-	-	-	-	-	℥j.
	Capsici. bacc. p.	-	-	-	-	-	-	℥j.
	Opii. pulv.	-	-	-	-	-	-	grs. vj.
	Extr. gent. lut.	-	-	-	-	-	-	℥iss.

M. ft. pil. æq. No. 15.

Vel.

R.	Sul. quiniæ	-	-	-	-	-	-	℥ss.
	Capsici. bacc. p.	-	-	-	-	-	-	℥ss.
	Camph. p.	-	-	-	-	-	-	℥ss.
	Extr. gent. lut.	-	-	-	-	-	-	℥j.

M. ft. pil. æq. No. 10.

feeble and quick, 120 pulsations in a minute; throbbing of the temporal arteries, especially on raising the head; impaired digestion, and defective sanguification; tongue extremely pale; mental and corporeal languor; bowels soluble. For this state of things I had administered a variety of remedies, chiefly chalybeates, opiates, and mineral acids; the latter externally and internally. The case being tedious, my friend Dr. M'PHEETERS was called in consultation. Upon his recommendation, the sulphate of quinine was given in doses of four or five grains, three times per day, for two days. But it aggravated all the previous symptoms to such a distressing degree, that we were compelled to abandon it altogether in her case. Other remedies were resorted to; and after a tedious and at one time hopeless illness of several months, she finally recovered. This was the first case in which I perceived the pernicious effects of quinine in cases of debility, and in such a constitution.

CASE II. Mr. G. O. L., æt. 19, lymphatic temperament; full, soft, rotundity of habit, with muscles soft and flaccid. He was attacked June 29th, 1831, with severe *bilious* fever, with quick, full, weak, and irritable pulse. Blood-letting was used pretty freely on the second and fourth day of his illness; purgatives and the usual evacuants were used. The case became protracted into an irritable remittent with diurnal exacerbations, pulse 90 to 120 per minute. In this condition I administered the sulphate of quinine, especially during the apyrexia, believing it a tonic. It immediately aggravated all the unfavourable symptoms, such as throbbing in the carotids, tinnitus aurium, accelerated irritable pulse, nausea, vomiting, &c. Not knowing at that time the exact properties of the quinine, I persevered in its use for several days under various circumstances, in hope of subduing the irritable excitement by its tonic stimulant properties. But nothing would so modify its effects as to render it admissible, and it was reluctantly abandoned for porter, claret sangaree, &c. by which a cure was effected.

Remarks.—In this case, most probably the blood-letting was a disadvantage, and instead of arresting the fever in the first stage, it augmented the subsequent debility and irritability of the general system; and this was further aggravated by the improper use of quinine. His temperament too was as I have since learned, unfavourable for quinine in almost any case.

CASE III. Mrs. D. S. æt. 27, leuco-phlegmatic temperament, rather tall, somewhat full habit when in health; mother of three children. For twelve months previous to my visit, she had been in bad health, and supposed to be labouring under hepatic disease; she had

been under the care of several physicians in her vicinity. When I first saw her, she was exceedingly feeble, pale and sallow, with a low, irritable febricula, pulse 100 to 110 per minute, and very feeble; palms of the hands and soles of the feet dry and hot, with a burning sensation; bowels were torpid, but were occasionally lax, with yellow, thin, bilious discharges, and often accompanied with distressing tenesmus, uneasy sensation in the right hypochondrium. In this situation she was unable to sit up in bed more than five minutes at once, on account of throbbing in the head, palpitation, and other symptoms of irritable debility. In this state she had been taking pulv. ipecac. comp.; nit. potassæ; sul. quiniæ; Seidlitz powders, and other medicines calculated to reduce sthenic excitement; all of which were decidedly injurious, especially the quinine which was given under the belief of its powerful tonic properties. The rapid aggravation of all those symptoms by the last article, during the last few days, produced the alarm which caused me to be called to see her entirely out of my neighbourhood. Yet neither her friends nor her physician had suspected the quinine, for it was considered a valuable tonic, and just such as she required, but with it was enforced a strict antiphlogistic regimen! I directly changed the whole course, *proscribed* quinine, and gave wine, porter, chalybeates, and opiates; ordered a light generous diet, daily friction of the surface with a strong liniment. Under this plan, modified to suit circumstances, she rapidly improved, and in ten or fifteen days was able to sit on horseback.

Remarks.—I do not hesitate to say, that I believe, if the quinine and other contra-stimulants had been continued a few days more, her mortal existence would then have been terminated. The extreme debility and irritability were such, that her system must unquestionably have yielded. Whenever these had been aggravated by the quinine, the *onus morbi* seemed to fall immediately upon the brain and liver, and attended with copious bilious discharges.

CASE IV. Mr. D. D. G., æt. 40, nervoso-lymphatic temperament, full habit, inclining to obesity; flaccid muscular fibre. In September, 1832, he was attacked severely with *bilious* fever. He was depleted freely and carried through a severe mercurial treatment before I saw him, at which time he was very much debilitated. During the periods of remission in his fever, he had attempted to take quinine in doses of three or four grains, as well as in smaller doses; but invariably with pernicious effects. His physician having persevered in his attempts with this medicine for several days, under the belief of its febrifuge and tonic properties, was at length compelled to abandon it entirely in this case, on account of the distressing nausea, head-

ache, throbbing of the carotids and tinnitus aurium, which it uniformly produced. Wine-toddy, and anodynes were substituted with the happiest effects, and under their use he rapidly recovered.

Remarks.—I feel certain, that had the use of quinine with this patient been persevered in to the extent prescribed by many practitioners, this man would have fallen a victim to its use, and a martyr to preconceived opinions; or at least he would have been thrown into a protracted debility and febricula, and his final recovery doubtful.

CASE V. Mrs. W., æt. 45, of leuco-phlegmatic temperament, full, corpulent habit, and lax fibre; frame rather large. This lady had been severely attacked with bilious remittent fever in August, 1832; this attack was succeeded by a very feeble and infirm convalescence. When I first saw her about the middle of September following, she was labouring under the effects of an imperfect tertian intermittent; her countenance was pale and occasionally bloated; extremities slightly œdematous; pulse feeble and small; bowels dysenteric, and aggravated by severe tenesmus during each paroxysm of her fever; great dejection of spirits continually; mental lethargy and imbecility; tongue clean, smooth and pale. During each paroxysm of her intermittent, she was oppressed with extreme languor and debility, so much so that it was feared she could not survive one or at furthest two more. The family physician had been pursuing an active course of mercurial purgatives, with the desire of placing her under the constitutional influence of mercury, and during the last few days he had been making a free exhibition of the sul. quiniæ, on account of the intermittent character her disease had assumed. Every dose of this last medicine had aggravated all the symptoms of irritable debility, and the throbbing of the carotids, tinnitus aurium, faintness when the head was erect, nausea and vomiting had become distressing, and extremely alarming. Under these circumstances, I was requested to visit her in consultation. Neither the family nor the physician had suspected the pernicious effects of the quinine, although they readily admitted that she had been worse during the time she had been under its use. But this was attributed to the intractable character of her disease, resisting the powers of even this potent medicine.

The quinine was immediately discontinued, a mild laxative administered, with wine and water as a drink. After the operation of the laxative, she was put upon the use of the following pills; viz.—℞. Caps. p. grs. v.; opii. p. grs. iij.; camph. p. grs. v.; extr. gent. ℥ss.; M. ft. pil. æq. No x.; taking one every two hours for six hours preceding the expected paroxysm of the intermittent. Friction freely, wine, light nutritious diet were continued daily. Under this course

she improved rapidly; and a few days afterwards, as soon as she was sufficiently relieved from the prostration and irritable debility, the following was substituted; viz. Phosph. ferri, ℥j.; zing. p. ℥ss.; M. ft. pulv. æq. No. 4.; one to be taken every five hours. Had this patient continued the use of the quinine, she certainly could not have survived more than a day or two longer.

CASE VI. Mrs. M. æt. 35, of lymphatic temperament, large frame, muscles covered with a thick deposition of cellular substance. She was attacked in September, 1831, with a bilious remittent fever. About the seventh day of her illness I was called to see her in consultation. She had been bled, and freely evacuated; and for three days previous to my visit, had been taking quinine quite freely, having begun with it at the first indication of a remission. The symptoms were such now as excited considerable alarm, the original remittent had left her, but she was labouring under the most distressing irritable excitement, nausea, and continual vomiting, and vertigo; all which were caused and kept up by the quinine. A blister had been applied to the epigastrium to relieve the gastric irritation, but without effect, so long as the quinine was administered. I immediately discontinued the sul. quiniæ, and gave a few portions of the julep of carb. ammon. and paregoric. Every unfavourable symptom disappeared almost instantaneously, and convalescence proceeded rapidly to perfect health, without any other medicine.

CASE VII. C. B. æt. 22, of lymphatic, or leuco-phlegmatic temperament; tall and slim; feeble in physical and mental energy. In October, 1832, he had complained of debility and an imperfectly developed intermittent, but still continued to attend to his ordinary business of keeping store. In this state, after a purgative, he took very freely of a strong solution of sul. quiniæ. He had been taking it only twenty-four hours when I was called in haste to visit him, as he was thought to be dying. The distance being only one or two hundred yards, I saw him immediately, and found him in bed, pale and extremely feeble, disposed to faint whenever his head was raised from the pillow; pulse languid and feeble. I immediately administered a dose or two of aqua ammoniæ and tinc. camph. in a little brandy-toddy. This almost instantly relieved his distress, and by repeating it every two or three hours for one or two days, he was entirely relieved. During these two days, whenever he omitted the dose too long, the same symptoms as before began to recur, so much was his system under the action of the excessive doses of quinine.

CASE VIII. Miss M. K. æt. 9, a child of delicate constitution, of nervo-lymphatic temperament, and light hair. In the latter part

of September, 1832, she had a severe attack of autumnal remittent fever, from which her recovery was slow, with frequent relapses. When I saw her towards the latter part of October, in consultation I found her skin pale, abdomen tumid, with constant slow fever, which seemed to have been kept up by a sub-acute inflammation of the bowels, together with an enlarged spleen and tumefied liver. For several days she had been using the quinine, which had been observed to quicken the pulse, and to excite an irritable fever, with great anxiety. I advised the discontinuance of the quinine, and the use of wine, opiates, and chalybeates combined. A blister had been applied to the epigastrium. I had the pleasure to find that she improved under this course, and was soon restored to health.

These few cases I have selected to illustrate the pernicious effects resulting from an *improper use* of this valuable article. Many more might be given; but being unwilling to protract this paper unnecessarily, I have selected these as embracing all that might be contained in any greater number of cases.

To show that the properties and effects of quinine, as herein set forth, have not entirely escaped the observation of practitioners, I will cite the authority of a few writers in Europe, as well as in the United States. Although they possessed a partial knowledge of its effects in certain cases, they by no means understood correctly its precise medicinal properties. As we noted in the former part of this paper, M. Bally considered it “*more irritating than the sulphate of cinchonia*.” This is the result of its peculiar property of diminishing the tone and increasing the irritability of the system in *debilitated* cases, in which the sulph. cinchonizæ would be proper, or at least preferable to quinine. Dr. GUNTHER,* of Cologne, in 1825 recommended a combination of quinine and digitalis in phthisis pulmonalis, in the quantity of two or three grains of the former, and half a grain of the latter every three or four hours. This combination would, doubtless, be salutary in febrile or inflammatory cases, and in tonic diatheses. In such, the action of the two articles would be perfectly compatible. M. VULPES,† of Naples, states that in a very fatal *asthenic fever*, which came under his care, having broken out among a number of invalids, crowded together in a convent, the sul. quiniæ could not be used safely. This fever, at first being considered of an inflammatory character, was treated antiphlogistically, and with ill success. Next supposing it to be *asthenic*, it was treated with sulph.

* See American Journal of Medical Sciences, No. IX. p. 214.

† Vide Revue Médicale, May, 1828.

quinia, erroneously considered as a powerful tonic. But this aggravated every symptom; being even more pernicious than the antiphlogistic plan. The cinchona, (quinquina,) a real tonic, was next used with the happiest effects. This is a case fairly in point, where the quinine was demonstrated to be improper in asthenic states of the system, and *vice versa*. M. Vulpes further confirms the principles herein set forth. He contends that the quinine is *anti-febrile*, and is different in its properties from the bark; the latter being tonic, the other not. Dr. HARTY,* of Dublin, states that the sulph. quinia possesses the property of accelerating mercurial action, similar to that of tartarized antimony. It produces this result by diminishing the tone and excitement to the mercurial point. The same may be obtained by blood-letting, antimonials, nitre, digitalis, &c.

I now proceed to cite authority in our own country. Here all written authority, so far as I am acquainted, is in direct opposition to some of the principles laid down in this paper. Yet, from even such testimony I shall adduce sufficient evidence to confirm the principles contained in this paper.

1. In the "Western Journal of the Medical and Physical Sciences, for October, 1829, is an essay on the autumnal fevers of Georgia, by JAMES C. FINLEY, M. D." The author, after speaking favourably of the sulph. quin. as a tonic in these fevers, adds, "I have certainly seen very serious inconvenience follow its administration, *even when there was a perfect intermission of twelve hours, with a soft pulse, and a general relaxation of the surface*. Some caution is undoubtedly necessary, therefore, in resorting to it." (Vide page 190.) Cases of this character, which are doubtless frequent in the low lands of Georgia, are those in which we have shown the quinine to be decidedly pernicious. For quinine, always improper in relaxed and asthenic fevers, is especially so during their remission. Here the doctor, although the fact could not escape his close observation, seems to consider this an anomaly in the effects of quinine. Being unacquainted with its precise medicinal properties, he has consequently reasoned erroneously relative to its effects. But in these and other irritable cases, where quinine is injurious, he very correctly recommends as antidotes and substitutes, opiate anodynes, ammonia, wine, &c. Thus far his experience coincides with mine; and upon the whole, his few remarks relative to the use of quinine in his paper are more judicious than any I have seen. But he evidently was not apprised of its constant pernicious effects in relaxed asthenic and

* See Edin. Med. and Surg. Journ. for October, 1829.

congestive cases, for in the July No. of the same Journal, for 1830,* we see him using it in the most improper cases. For the sake of brevity, I beg leave to refer the reader's attentive observation to the first, second, third, fourth, and seventh cases as there recorded, and to examine and analyze them by the principles contained in this paper.

2. Again, I refer the reader to a paper by Dr. JOHN H. SAVAGE, on the fevers of Mississippi, published in the Transylvania Journal for March, 1831.† He believes the sulph. quiniæ a powerful tonic and stimulant, and to this belief the most stubborn facts must bend. He states that it speedily converts congestion into inflammation, accompanied with general tonic inflammatory reäction, and hence infers the impropriety of its use in congestive fevers. If such were its properties, what would be its effects in those cases of open fever and tonic action in which he recommends its use? That which he takes for inflammation and reäction, is only so many evidences of that peculiar irritable state of the arterial and nervous systems, which is produced by the *contra-stimulant* properties of quinine in improper cases. He says, "in all cases of *congestive* fever, the *brain*, as has been before remarked, *suffers from vascular engorgement*; and it is in this variety that the sulphate of quina displays its most pernicious, and frequently fatal effects." These fatal effects result from increased irritability of the brain and nervous system, and not from inflammation as he supposes.

3. Finally, I refer to a paper on the autumnal remittent fevers of Alabama, by J. W. HEUSTIS, M. D. in the No. of this Journal for February, 1832, for several facts confirmative of my principles, though the author, who believes quinine to be a tonic and stimulant, views them differently.

Before closing this paper, I will make one remark relative to the *cuticular introduction* of the sulph. quiniæ. I have known this article to be applied extensively to the skin by friction, even in fatal gastro-enteritic fever! A more egregious folly was never committed by man. The introduction of quinine by denuding the surface with epispastics, has been highly recommended by M. DE MARTIN,‡ Professor SPERANZA, and others, in the cure of those intermittents wherein its internal use cannot be tolerated. They seem determined that patients shall not recover, without having endured the effects of this drug in some manner or other. But the high authority of even great names cannot possibly divest this practice of its absurdity. I insist upon

* See pp. 40, 41, 42, 43, 44.

† See pp. 31, 32, 33, 34.

‡ Revue Médicale, September, 1827.

it, that its use externally, even if absorbed by the skin, cannot be otherwise than prejudicial in those cases where its use internally is impracticable. M. de Martin, himself, states that when quinine in dry powder is applied immediately to a denuded surface, it produces a black slough—gangrene, by directly diminishing the vitality in such part; yet he persists in its use, and to prevent this effect, as if it were a calamity for a patient to recover without quinine, he mixes it in cerate. By this means the exposed surface is protected from its action and its consequent effects, whether good or bad. Yet so partial is he to this medicine, that he ascribes salutary effects to it, even under these circumstances. Unfortunately, the human mind is prone to enthusiasm, even when most enlightened, and in no pursuit more than in medical science and practice, where too often the unfortunate patient, after suffering more than death, pays with his life the price of his physician's enthusiasm. In cases of intermittent fever, where the cure is ascribed to quinine applied externally to a denuded surface, the cure is, in fact, attributable to the vesicatory, and not to the quinine. With me it is not uncommon, in protracted intermittents, when other remedies have failed, to complete the cure by epispastics to the extremities and elsewhere, with all the certainty which has been ascribed to the external application of quinine to a blistered surface.

It may not be improper to add a few remarks relative to some of the *combinations* of quinine in practice.

1. *With calomel*.—No doubt the action of calomel in a certain class of cases is promoted greatly by the addition of quinine. But this effect is obtained only when judiciously employed. In many other cases calomel, itself improper, is rendered doubly pernicious by the addition of quinine. These last are cases of debility and increased nervous irritability, with morbidly increased secretion from the liver. The former are those of sthenic fever, without any great local determination, or any increased organic sensibility. Calomel and quinine, with or without pulv. ant. and opium, is admirably adapted to ardent summer and autumnal fevers, attended with serous or watery discharges from the bowels, and where at the same time the surface is hot, the tongue soft and moist. It is very applicable to cholera infantum in the incipient febrile state. The quinine tends to reduce the inordinate general action down to the *secreting point*, while the calomel is thereby enabled to produce a more immediate impression upon the defective secreting functions. In bilious and other fevers of debility, especially in persons whose constitutions are impaired by intemperance or otherwise, quinine is decidedly inju-

rious, by increasing the debility, and adding to the attendant constitutional irritability. In this variety of cases, calomel too is pernicious, acting as a general and local irritant. But in ardent fevers of whatever character, in the first stages of even scarlatina anginosa, the combination of calomel and quinine is highly useful.

2. *With nit. potassa.*—This combination is adapted particularly to ardent fevers with great excitement, or in fevers attended with moderate action and unimpaired constitutional vigour, but with hot, dry skin, and soft, coated tongue. The quinine and nitre act in union, and are perfectly compatible in those cases in which either are proper. Both are pernicious in asthenic fevers, and in simple asthenia. The pulv. ipecac. comp. is an excellent combination with quinine, and in many cases will supercede the nit. potassa, especially in the first stages of those fevers which occur in winter, of synochus character.

3. *With spt. æth. nitrosi.*—The spt. of nitre differs from the nit. potassa in its properties, and possesses slightly stimulating febrifuge properties. In cases of fever in delicate constitutions, and in children, this property of the spt. of nitre is well adapted to a combination with quinine. By this means the violent action of the quinine, as a counter-stimulant, is in some degree guarded, while its febrifuge properties are not impaired. This combination is more efficacious with a portion of tinct. opii camph.

4. *With antimonials.*—The pulv. ant. is preferable to ant. tart. and is proper in all those cases where the nit. potassa may be combined with advantage. The golden sulphuret of antimony with camphor, is an excellent addition to quinine in low cases of fever of a typhoid type. This combination produces an excellent effect as a stimulating febrifuge and sudorific.

5. *With camphor.*—Camphor is one of the antidotes to the effects produced by an excessive dose of quinine. In cases where the contra-stimulant effects of quinine alone would be injurious, the addition of camphor changes its effects into that of a stimulating febrifuge, and adapts its use to cases with oppressed circulation, in which it would otherwise be injurious, as in congestive fevers, and also to typhoid febricula. It will also be a judicious combination in fevers attendant upon impaired constitutional tone from intemperance, &c. In these last cases it might be used, combined in solution with the common camphorated julep.

6. *With opium.*—Opium forms an excellent adjuvant and corrective to the sul. quiniæ in cases of protracted intermittents; but in cases of remittent and continued fevers, quinine is seldom proper where opium is *required* to counteract its pernicious effects. Some-

times, however, there are cases of remittent and continued fever in persons of delicate constitutions, or constitutions naturally irritable, and unattended with general debility, where quinine and opium exert the happiest effects. The opium in such cases counteracts, or allays that irritability which the quinine alone would produce.

7. *With digitalis*.—In a preceding page we referred to the use of quinine with digitalis in phthisis pulmonalis. The digitalis would not be given prudently in other than inflammatory cases, or those attended with fever and arterial excitement. In such, the action of quinine is almost identical with digitalis, both tending to reduce the force and frequency of the pulse, and open certain secretions. I have made trial of this combination in pulmonary inflammation, but my experience in that point is too limited to justify much commendation. I should however give it as my opinion, that such a combination might be highly useful, especially with the addition of a small quantity of an antimonial and anodyne. But both quinine and digitalis would be injurious in those cases of phthisis pulmonalis growing out of debilitated constitutions and hereditary scrofulous habits.

With these remarks I close this paper. The principles contained are mostly new, and so far as I am acquainted, differ materially from those entertained by the profession generally. As confirmed by my experience, they may be summed up in the following conclusions, viz.

1. That the sulphate of quinine is not properly a substitute for the Peruvian bark; that its properties and mode of action differ essentially from those of the bark.

2. That *it is not a tonic*, but acts by a property differing, if not the reverse; and cannot be given with safety in cases where tonics or stimulants are indicated, but the reverse.

3. That its action in sthenic fevers resembles that of other contra-stimulants, by diminishing the force of the circulation, but it increases the irritability of the circulating and nervous systems in feeble constitutions, and in cases of direct debility.

4. That as a general rule, it is more applicable in sanguineous temperaments, and sound constitutions, than in nervous and lymphatic temperaments, or in cases of impaired constitutional vigour.

5. That it is not applicable in the stage of asphyxia, unless there be at such time, an unusual *force* in the arterial pulsations, and that it is decidedly pernicious in low grades of fever, and in every variety of fever attended with gastro-enteritis, and dry tongue.

Washington, Mississippi, February 25th, 1833.

ART. IV. *Reports of Cases.* By J. YOUNG, M. D. of Chester,
Delaware County, Pennsylvania.

CASE I. *Effects of lightning.*—On the evening of June 14th, 1832, the house of Mr. C. Levis was stricken with lightning. One of his daughters, aged thirteen, was sitting on a chair in the door-way between two adjoining rooms, down the post, or frame of which, a portion of the electric fluid passed from an upper room; the child and chair were thrown several feet, and she fell, and remained senseless until I saw her, which was in about an hour after the occurrence. When I arrived, a number of neighbours had collected, and in the confusion of the moment, they were all calling on me to hurry and bleed her. I had never seen a case of the kind before, and had not acquired by reading or otherwise, any fixed ideas concerning the treatment of such cases; and from the bustle attendant on this case, it afforded but slight opportunity for cool reflexion and determination; acting however on the surgical maxim, *festina lente*, while they were procuring bandage, &c. for bleeding, a serious doubt arose on the propriety of bleeding, under the circumstances attending it. The patient appeared to me to be in a situation entirely similar to many cases of *severe concussion* from blows, falls, &c. that I had witnessed. She was entirely insensible to every external impression, with deep, slow, interrupted respiration; the relaxation of the muscular system was complete; the pulse, as to fullness, was nearly natural, it was soft, very easily compressible, and very slow, being only about 60, as near as could be ascertained by a second watch; the pupil was sensible, though fully dilated; I believed to bleed under such circumstances, before reäction took place, would effectually prevent it, and instantly resolved to treat it as a case of concussion from any other cause, with the exception of *dashing* cold water on the head with my hand, a practice I had somewhere seen, or heard recommended, but have forgotten the authority; and I only resorted to it for the sake of *doing something* to satisfy the bystanders and parents, without expecting much good to result. In this however I was most satisfactorily disappointed. In less than half a minute, the patient began to toss about and moan for the first time since the accident; by a continuance of the dashing for about five minutes, she appeared so much aroused, as was evinced by crying, endeavouring to talk, though without being able, tossing, and shrinking from the cold, that we discontinued its use, had her wet clothes taken off, and had her put to bed and covered up warm. After this, she was alternately still, and inclined to doze

and sleep for a minute or two at a time, then to roll from side to side, moan, and seemed in great distress; the surface was cold, but the pulse harder, more frequent and quick; the pupils were contracted, and every thing indicated a change, approaching to reäction, to have taken place; I remained with her till 2 o'clock, A. M. when it was established, she could talk and explain her sensations; she complained of very severe pain in the head, and I now apprehended danger from the opposite quarter, to anticipate which, I bled her to twenty ounces by estimate, keeping my finger on the pulse, and not stopping till there was a perceptible change in it; her head was bathed with cool vinegar, and as her feet were yet cold, they were enveloped in wetted horse-radish leaves; in half an hour she sunk into a composed, comfortable sleep, from which she did not rouse till half-past 7 o'clock. Finding the pulse again too active, and the patient still complaining of some head-ache, I again bled her twelve ounces, ordered a dose of Epsom salts to be given in three or four hours, with some other directions concerning diet, stillness, &c. and left her, with a request to be sent for, if it was thought necessary. I heard no more from her for a week, when she had almost entirely recovered from all the effects of the injury.

Fortunately, accidents of this kind are not frequent, but still they are sufficiently so to render fixed principles in their treatment desirable. If any thing of the kind exists, I, and perhaps many others, are ignorant of where to find them; in fact, I do not recollect reading any thing concerning it in any medical work, although elaborate essays may exist; situated in the country, and engaged in the laborious occupation of a country practice, we have not the facilities for reference of city practitioners. If, however, we are justifiable in drawing conclusive inferences from our case, I believe the correct principle to act on, is to wait for reäction before venturing to bleed, and to promote the taking place of this by cold water dashed on the head. *Query?* Might not this cold dashing be serviceable in cases of severe concussion from falls, blows, &c. when the patient lies for hours, and even days before reäction comes on? I have not had an opportunity of trying it, since I witnessed its effect in the above case, but I think it worth a trial.

CASE II. *Gun-shot wound complicated with burn.*—Robert Sutter, Sept. 25th, 1831, in withdrawing the load from a large horseman's pistol, discharged the whole contents through the left hand; he had drawn the wad from the shot, and turned the muzzle into his hand to receive the shot, but it not running down, he struck the muzzle into the palm of the hand to shake it down, when the percussion caused

it to go off, and the load passed through the hand. I saw him in an hour after, he was pale, and could not sit up without fainting, although he had not lost an ounce of blood. The metacarpal bone and the flexor and extensor tendons of the finger next the small one were gone entirely; the finger with its connexion to the small one remained, but these two fingers were torn laterally from the ring-finger, the metacarpal bone of which was fractured near the middle, as was that of the small finger. In the palm of the hand, when the parts were approximated, there only appeared a ragged cut running from the middle to the roots of the thumb, forefinger, and the small finger; the back of the hand was literally torn to pieces. The fractured bones and their extensors were denuded, as was the metacarpal bone and tendons of the forefinger, the whole two was completely blackened with the burnt powder. On first examining it, the only idea that occurred to me was, that the hand must be amputated, for it appeared entirely improbable, if not impossible, that nature could ever restore such a mangled, blackened mass of flesh as it appeared, in such a manner as to be of any use to the unfortunate possessor of it. Having known some instances however of the wonderful powers of nature in restoring lesions, I thought it advisable to defer it, on the grounds that it could be done in a few days, if it was found absolutely necessary, after trying to restore it by proper means. Believing the third finger would be worse than useless, without a metacarpal bone or tendons, I removed it with a scalpel, (the parts were so benumbed, that in doing this, the patient knew nothing of it, until some days after he discovered when I was dressing it, that one finger was missing;) after this I cleansed the parts as well as I could, drew the sides of the small finger and ring-finger together, and retained them with adhesive strips; I then drew the lacerated fragments of skin together, so as to cover as much of the exposed surfaces as possible, and retained them with strips; the ends of the fractured bones were placed in apposition, and a piece of sole-leather fitted to the palm of the hand; anointed the whole hand well with castor oil, and enveloped it in raw cotton. It was not opened till the third day. I was apprehensive on one hand of tetanus, and on the other of sphacelus; I accordingly watched his symptoms with care, sometimes giving laudanum when required, and regulating the bowels, diet, &c. On the third day it was dressed, and from its appearance, taken in connexion with the state of the system, I was encouraged to hope for a more favourable termination than I at all anticipated at first view. Suppuration had not commenced, but I felt satisfied it would; dressing, the same as before, and over the external dressing an envelope

of thick muslin cloth, to be kept moist with warm water. In two days more it was suppurating kindly, and from this time till it was entirely healed, not an unpleasant symptom occurred; the fractured bones united; the cavity occasioned by the absence of the metacarpal bone above referred to, filled up, and on the 31st of October, being one month and five days after the accident, I dismissed him cured, with a very tolerable hand, at least such a one as he is enabled to work at his trade with, that of a shoemaker, and he lately informed me, that he “dont know but that he can work as well, and as fast, as before it happened.”

This case is only interesting, as it furnishes another example of the great powers of nature in restoring complicated lacerations. Had I yielded to the first suggestions of my own mind, which were seconded by the popular voice of perhaps twenty individuals who had assembled, not one of whom believed it could “ever be cured so as to be of any use to him,” and amputated the hand for the sake of gratifying a little vanity, perhaps it may be called, to which too many of us I fear are prone, what an irreparable injury the poor lad would have sustained. Instead of being able, as he now will be, to support himself reputably by his trade, his only resource would have been a miserable subsistence in some of our public Alms-houses.

As I alluded to amputations above, I will here refer to a case of a young man, whose family is prone to scrofulous diseases, who, about eight years ago, in getting on a horse, sprained his ankle slightly; he paid little regard to it at the time, but next day it was swollen to the knee, and very much inflamed; his mother used domestic means with it for three or four days, when finding she could not relieve it, I was requested to see it. On my first visit I found an evident fluctuation down by the outer side of the tibia; with an abscess lancet I opened the tumour, and it discharged more than a pint of thin flocculent matter streaked with blood; from that time the patient had hectic fever, chills and sweats, with loss of appetite, and rapid emaciation; his leg continued to discharge an unhealthy pus, from three openings which took place in the course of the tibia within about a month, and finally large fleshy granulations were thrown out; on probing it, the bone was found rough, and diseased from the ankle, to within two inches of the knee-joint. I prescribed tonics, opiates, and nourishing diet to keep up his strength, and to restrain a colliquative diarrhœa, which had become frequent and troublesome; he at times had too, a troublesome cough, with a copious muco-purulent expectoration. The case was altogether an hopeless one. This was the first occasion upon which I had ever been called into the family. In perhaps six

months after his accession of his disease, the physician who had formerly attended the family, happened to pass, and hearing of the indisposition of the young man, called as a friend to see him; he found him bed-ridden, coughing and spitting, his leg discharging, and hectic. Under all these circumstances, he insisted on the propriety of amputation. He wished to visit the patient in consultation; we met, I resisted the amputation, on the ground that if we did amputate he would die with consumption of the lungs, and that it was doubtful whether the stump would heal on account of the exhausted state of the system, and the tendency to scrofula; in short, that if he could not be cured without the operation, he could not by it. We met no more, I continued in attendance, and after a long struggle, (more than a year,) the powers of his system, aided by medicines which were varied from time to time, according to the circumstances of the case, began to exert themselves successfully, and his cough, diarrhoea, and hectic, all disappeared; he got to exercising on crutches, and the disease assumed entirely a local character. On the 20th of October, 1827, I cut down to, and removed about two-thirds of the whole caliber of the tibia, which from the epiphysis downward was spongy, and like a honeycomb in substance; in a short time this healed up, and a new bone has since formed. From that time till the present, occasional fragments have been detached from the remaining portion, and there is yet a small portion to be discharged; but the patient runs about on it without crutch or cane, and attends to his occupation; he is the son of a farmer, and assists his father in conducting and managing the farm. He has repeatedly expressed his satisfaction to me, and thanked me for my firmness in resisting the operation, assuring me that his leg is far preferable to a stump or a wooden-leg.

CASE III. *Chorea sancti viti*.—Since my former communication in your journal on this disease, I have treated another case of it. A brother, aged seventeen, of the young lady whose case is there described, was attacked May 20th, 1832, in one side. His health was perfectly good, and no clue as to the seat of the latent irritation causing the disease could be ascertained. Without administering even a cathartic, or any other medicine, he was put on the use of the pulverized root of the *Actea racemosa*, a tea-spoonful three times a day. He was getting worse from day to day before commencing the use of it, but it appeared to arrest its progress almost at once. After using it only two days he was visibly benefited, and was entirely cured in five days. He remains well, and no one of those formerly treated with it have had any return.

CASE IV. *Partial congestion of the brain.*—Mrs. H. was delivered of a dead foetus at the seventh month of gestation, on the 10th of May last. Things went on favourably for nine or ten days. The lochia ceased suddenly and she was attacked with violent pain in the anterior part of the head; I was called in haste, and on my arrival, supposed the pain in the head might be owing to that cause, and prescribed accordingly; next day the lochia had returned and she was much better, and continued so for three days, when I was again called in haste to her. I now found her in excessive pain under the left parietal protuberance, extending downwards and forwards to the ear and eye of the left side, and entirely unable to speak, *except in monosyllables*. She was entirely rational, had the free use of her tongue, and appeared to comprehend every thing said to her, but could not reply to any thing further than yes, or no, correctly. She had not lost the recollection of words, but the power of connecting them into sentences; thus, when I asked her where the situation of the pain was, she laid her hand on the side of her head, and said “its—house—dog—mother,” and I stopped her, and asked, have you pain in any other part of the head, she said, no; is it very severe? yes, she replied. I asked if she had pain in any other part than the head, she said, no. But when asked any question that required more than one word, as yes, or no, for answer, she ran on with a string of entirely disconnected monosyllables till stopped, when sometimes she would burst into tears from the consciousness of her inability to make herself understood, or to give correct answers. Her bowels were rather torpid; tongue clean and natural; the countenance natural; the pulse soft, slow and regular; the lochia had again ceased; the stomach occasionally nauseated; no thirst. I ordered ten grains of calomel, divided in five powders, one every hour, to be carried off with oil; warm vinegar, and camphorated vinegar to the head; fomentations to the pubes, and pediluvia of salt water; drink pennyroyal or cat-mint tea; diet, gruel or panada; entire quietness, the room to be kept ventilated, and well shaded.

Next day she was much as before. When I asked her how are you this morning? I received for answer, “I—cant, no, fire, town;” I stopped her, and asked, are you any better? she said no. I asked a number of questions, to all of which she replied in such disjointed sentences, that I did not perceive any change for the better. I ordered a continuance of the same means as yesterday, with a sinapism to the neck.

At my next visit, May 26th, she appeared a little better, inas-

much as the pain was less severe; she had rested better during the night, but could not make herself understood any better than before. Same treatment was continued, except a blister to the neck.

27th. She is still improving; can connect *two* words together; thus, she replied, when asked how are you to day? "I'm better." How did you rest last night? "much better," she replied. If, however, she attempted saying more than this, it was all confusion. The lochia has again appeared. Continue same as yesterday.

28th. Could perceive a slight mercurial foetor in the breath, and it was discontinued. She is gradually improving. Nothing further was done, save keeping the bowels free, and in two days more, the brain was entirely relieved, and she could converse as well as before. The mouth was not made sore. After she recovered so far as to converse, she informed us, she comprehended every thing said to her, but was entirely unable to recollect her ideas so as to answer; she knew that she did not answer aright, "but could not answer any better." It appeared to be the faculty of combination that was lost; or a *congestion of the organ of concentrativeness*; a case, differing in some respects, from those I have seen published, and furnishing another very striking example of the possibility of one of our cerebral faculties or organs being injured or destroyed, while all the others remain undisturbed.

CASE V. *Chronic dysentery*.—In April, 1827, I was called to prescribe for Mr. J. E. whose health had been declining for nine or ten months, in consequence of chronic dysentery. He was of a remarkably hale constitution, and had never known what sickness was till attacked with acute dysentery in autumn 1825. His physician prescribed nothing but calomel and opium for him in such quantities, that in three or four days he was completely salivated, but he was not cured; his bowels remained irritable, with occasional violent attacks of tormina and tenesmus, with scanty evacuations, frequently of little else than mucus; castor oil and laudanum for a length of time relieved his attacks, but they continued returning at shorter intervals, until he applied to me, when he had all the symptoms of severe dysentery, with the exception of the nausea and sickness of stomach, that frequently or generally attends it, and without any regular fever; he had frequently more than a dozen evacuations during twenty-four hours, with excessively severe tormina and straining, and never passing any thing but slime or mucus, sometimes streaked with blood, at other times not unless while under the operation of medicine. He was losing flesh rapidly, was pale and dejected; his appetite was not particularly affected. I commenced treating him with laxatives, as

rhubarb in powder, and in its various officinal preparations, with bitter infusions for drink, and a regulated diet: by these means he was apparently benefited, but they were found insufficient to cure. I then combined absorbing with relaxing medicines and diet, with the same result. Tonics, with blisters to the abdomen, and blue mass as an alterative, were persevered in for week after week; turpentine julep, bals. copaiva, the most powerful astringents; in short, every mode of treatment, and every article that my reading, or reflection could suggest, were tried, and all without effect. I finally recommended him to Dr. CHAPMAN, but he was absent in the country, and he was recommended to Dr. PARRISH, with a statement of his case, and treatment that had been pursued; he suggested a perseverance in the means in use, with the addition of a salt-water bath; this was faithfully tried, till we were satisfied no good resulted from it. I had told Mr. E. that I could not do any thing for him more than I had done, and one of his friends recommended him to Dr. EBERLE, then a resident in the city. Dr. E. prescribed for him several weeks without any benefit resulting. By this time he was emaciated extremely; his *weight* was reduced from 194 to 122 lbs.; he was sallow, and dejected in spirits; his disease was progressing, and he had been under constant medical treatment for about fifteen months; his ankles and legs to his knees were œdematous, and he was evidently verging rapidly to dissolution. He again applied to me, hoping that I might possibly yet think of something that might benefit him. I had told him frankly my opinion of the nature of his disease, that in all probability there were, perhaps a number, of ulcers in the intestines, but how to heal them I did not know. He stated this to Dr. E. who also told him he believed it altogether probable that ulcers did exist. I now commenced anew with him. It was now evident, I thought, from his complexion and other symptoms, that his liver was implicated materially; an opinion in which my esteemed friend, Dr. HUSTON, of your city, concurred, and I resolved on directing a part of my means to this viscus. Accordingly, I introduced a seton over the liver, gave him blue mass, five grains, every night, with oil next morning; and Dover's powders, in ten grain doses, to allay the pain, as occasion may require. Fortunately about this time I received the 4th No. of the American Journal of the Medical Sciences, containing a paper on chronic dysentery by Dr. J. K. MITCHELL, in which gum water with blue mass was recommended as having speedily cured several cases of that disease. In addition to the above means, gum water for *diet* and *drink* were urged. He commenced with it, and from that day the pain, and the discharges from the bowels were found to be so completely controlled

by it, that the further management of the disease was left to the patient's own discretion. He did not confine himself strictly to his *new* diet, as his stomach soon rejected the solution of gum in water; he then dissolved it in milk, and used largely of it, but he was so rejoiced in having obtained command of his affection, that he prolonged his recovery by indulgences, which frequently obliged him to conform strictly to my directions for a few days, when some deviation would aggravate his symptoms again. He however persevered for about six or seven weeks, when he found himself materially better, and was satisfied that the means in use would effect a cure. He discontinued the use of the gum Arabic, and with his blue mass, four or five grains two or three times a week, and Dover's powder *pro re nata*, continuing the seton in the side, he succeeded in curing himself effectually. The blue mass and powders were gradually withdrawn in about three months; the seton he wore for some months longer, when it was finally withdrawn, all the symptoms of disease having disappeared. He enjoys at this time, and has for four or five years past, as good health as he did previous to his original attack of dysentery.

CASE VI. *Poisoning with laudanum.*—October 8th, 1827, I was called to Miss — at five o'clock in the morning. Found her comatose, with deep, slow, stertorous, *puffing* respiration. Could learn nothing about her only that she went to bed as well as usual the evening previous. It was impossible to arouse her by any means; muscular relaxation complete. What should have occasioned such a state of things in a hale young girl, was a mystery at the time. There was evidently a violent determination to the brain, and I bled her; but I had not abstracted more than six ounces before the pulse gave way so much as to render it necessary to stop the flow. All that could be done was to use sinapisms and frictions, as she could not swallow; cold cloths were kept constantly on the head. These were faithfully applied, and in twenty minutes, the pulse having filled up, I again opened the orifice, and drew about ten ounces more blood, when the pulse again failed, and I bound up the arm. I left at 6 o'clock, after recommending a continuance of the sinapisms, frictions, and cold to the head. I saw her again at 8 o'clock. But very slight alteration had taken place, except now she moaned frequently, and thus evinced some more sign of returning animation. The pulse was again full, though soft and yielding: I bled again: the pulse held out till about a pound was extracted, when it again failed. I again left, with an injunction to persevere in the former external applications. I did not see her till five in the afternoon: on my entering

the room she addressed me—"Ah doctor, I never intended to have seen this time." I found her in strong labour, and in less than half an hour, I delivered her of a fine boy. The history of the case was, that she had become pregnant, though she had so artfully managed to conceal it, that not a person about the house suspected it; in fact, her character was entirely beyond suspicion. She now informed us, that she had taken *an ounce* of laudanum in a tea-cupful of whiskey, with the determination of destroying herself; but she was thwarted in her designs, married the father of her infant, and makes a valuable wife. In this case, had I known that laudanum had been taken, I should have proceeded differently in the treatment, but certainly not more effectually; the whole ounce of laudanum, (I was shown the ounce vial, and she assured us it was full,) remained in the stomach, producing its usual effects on the brain and nerves, and I account for the success attending the treatment, by supposing the repeated bleedings and cold applications, to have kept down the determination to the brain so far as to prevent any serious injury there, while the constant frictions with whiskey and Cayenne, together with the sinapisms, aided in keeping up the circulation in the extremities and surface, and thus enabled nature to triumph over the effects of the liquid poison. By care, and the usual means that would suggest themselves to any one accustomed to treating disease, she was completely relieved from every effect of it in five days.

Chester, August 5th, 1833.

ART. V. *On the Forces by which the Blood is Circulated.* By
MAURICE FITZ GIBBON, M. D.

THE powers which circulate the blood, have been subjects of inquiry ever since the great discovery of the circulation, and numerous are the opinions that have been offered to account for the motion of this fluid; and yet it may be fairly asked, what do we really know, on which there rests no doubt in addition to these facts, that the blood is circulated, and that it acquires motion by the contraction of the heart. It is true we do know a little more, but this little has been, I think, greatly overrated, both in respect to its importance, and the degree of certainty which is attached to it.

Notwithstanding all that has been said on the subject of the dias-

tole of the cavities of the heart, it is not yet generally understood, whether the fibres of the heart are active or passive while the diastole is being effected, i. e. whether the fibres constituting the muscular parietes of the auricles and ventricles of the heart, are relaxed in each cavity during the time in which they receive blood, or whether they are actively concerned in dilating the cavity into which the blood enters. The opinion of HARVEY is that which almost generally prevails in the schools. He contended that a state of inertia or relaxation succeeded to the systole of the heart, and that the heart itself is the sole mover of the blood. Thus supposing the auricles to be full of blood, and the ventricles empty; the former, according to his view, contract, force the blood into the latter cavities, separate their relaxed walls from each other, and distend them. The ventricles now filled with blood, contract; the tricuspid and mitral valves are closed by the pressure made on the blood; the semilunar valves are opened by the same cause; the blood is forced into the arteries of the greater and lesser circulation, it moves onwards through the arteries into the veins, back again through the latter vessels to the auricles of the heart with undiminished velocity, and these cavities it enters, dilates, &c. The blood from the right ventricle goes through the arteries of the lungs, and from these into the pulmonary veins, thence into the left auricle. The left auricle forces it into the left ventricle, which contracts, forces it into the aorta, thence into all parts of the system, from which it is continued in motion by the force impressed upon it, into the veins, and by these to the right side of the heart.

Of all the modern writers who adopt the above opinion, there is no one who is less equivocal in his belief of it than Dr. BARRY. “The supposition,” he says, “that the cavities of the heart possess the power of dilating themselves, and therefore of acting alternately as suction and forcing pumps, although adopted by some physiologists, has hitherto derived but little support either from anatomy or experiment. This opinion was too trite, even in the days of Harvey, to merit serious refutation. Neither the auricle nor the ventricle appears to be furnished with any intelligible muscular apparatus, by which either can accomplish its own dilatation.”

Although the opinion of those who contend for the active diastole of the heart is not incompatible with the peculiar doctrine of Dr. Barry on the “*influence of atmospheric pressure upon the progression of the blood in the veins*,” still it seems to be any thing but pleasing in his sight, and creditable in his estimation. Were Dr. Barry to view the influence of the active diastole in the light I do, he might

acknowledge that it is real, and yet not fear for the credit of his own views. But Dr. Barry, in denying the diastole to be active, denies, in fact, what he appears to aim at, that is, the suction power of the heart. It would appear, if we may be permitted for a moment to look into Dr. Barry's sentiments respecting his discovery, that he strongly apprehended a rival pump in the diastole of the heart, even though he assures us, "*the supposition that the cavities of the heart possess the power of dilating was too trite even in the days of Harvey, to merit serious refutation.*" Now I admit that Dr. Barry's views on the influence of respiration are not without proper foundation, but in my opinion he has greatly overrated the influence actually exerted by that power. Those also who have contended that the heart acts as a powerful sucking pump, have also, in my opinion, been equally in error with Dr. Barry; while the views of Harvey, though forcibly objected to by all who contend for the powerful influence of suction in one or the other way, appear liable but to a few objections. An inquiry into the influence of the agents to which I have now alluded, will constitute the principal subject of this paper.

Active diastole of the heart.—Experiment has proved in the hands of many, who have carefully investigated the subject, the active diastole of both the auricles and ventricles to be real, contrary to what Dr. Barry asserts; and we can oppose to his opinion on the subject, that of BICHAT, MAGENDIE, RICHERAND, LANGRISH, HAMBERGER, and several other eminent physiologists. Still more recently we have the authority of Dr. THOMAS ROBINSON, of Virginia, a highly talented physiologist, who published his remarks on the circulation of the blood in the 22d No. of this Journal.

Richerand, it must not be concealed, has used the following language:—"The cavities of the heart, however, are not *entirely* passive during dilatation;" and this leaves me somewhat at a loss how to consider his opinion on this subject, for I do not believe simply in a diastole, in the least extent passive, but fully and completely active. However, he either believed in the active diastole of the heart, or was most inconsistent with the results of his own observations, for he also says, "if you attempt to check the diastole of the heart, this organ resists the hand which compresses it, and its cavities appear endowed with a power which GALEN termed *pulsive*; in virtue of which, they dilate to receive the blood, and not because they receive it."

Magendie also observes—"all that has been said of the force of the heart, relates only to its contraction, its dilatation having been considered as a passive state, a sort of repose of the fibres; however, when the ventricles dilate, it is with a very great force, for example,

capable of raising a weight of twenty pounds, as I have many times observed in animals recently dead. When the heart of a living animal is taken hold of by the hand, however small it may be, it is impossible by any effort to prevent the dilatation of the ventricles. *The dilatation of the heart then cannot be considered as a state of inaction or repose.*

Even Bichat, who lays a lower estimate on the influence of the heart in circulating the blood, than any other physiologist, says, “we shall see that this kind of motion is real to a certain extent, both in the *heart* and the organic vessels. But here it is wholly different; *the heart dilates of itself when it is empty, as we see by drawing it out of a living animal*, and by emptying it afterwards of the fluid it contains, because *it has in itself the cause of dilatation.*”

We do not find in the works of the older physiologists, opinions similar to those I have now given, for reasons I shall hereafter notice; but that Harvey, Haller, and others felt the heart dilate as forcibly as Bichat, Magendie, and Richerand, cannot be doubted; they however did not understand it alike with those who have entertained the opposite opinion.

I might go on to show, that the diastole is active, by many other authorities who have observed and described the action of the heart, were it really necessary. But I cannot omit referring to the case of Dr. Robinson, in a previous No. of this Journal, in which the active diastole is so fairly and satisfactorily observed, as to remove whatever doubt may still exist on the subject.

I should be guilty of an unpardonable omission were I at this time to leave unnoticed the view of Dr. HOPE, of London, “*of the physiology of the heart’s action,*” which he terms new in the very title page of his “*Treatise on the Diseases of the Heart and Great Vessels,*” published in 1832. This view, notwithstanding the great precaution which the author used to obtain correct results in his experiments, appears to us to be extremely erroneous, and calculated to misguide every person who may confide in the principles which he has laid down. While I thus openly express my sentiments as to the character of the work of Dr. Hope, I can with pleasure say, that I have no where met the action of the heart so faithfully, fully, and, in my opinion, correctly described. His experiments are minutely detailed, and I am satisfied every particular as it appeared is correctly recorded; but he did not permit his views to be governed by his experiments, and the exact observations which he took the trouble to make.

It is scarcely necessary to remark that the rythm, or order of suc-
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cession in the action of the heart, is a matter of the highest importance to be understood, and this of course can only be the case when the action of the heart itself is distinctly known. According to the observations of Dr. Robinson, the following is the order of succession—diastole, systole, repose, and, as he observes, “Bichat’s experiments led him to the same conclusion,” and presently I shall show, from Dr. Hope’s account of his own experiments, that he has seen exactly the same thing with Dr. Robinson. The rythm, according to Dr. Hope, is systole, diastole, repose. I conceive the entire error of Dr. Hope to arise from the following opinion, with which he almost commences his book. Speaking of the diastole of the heart, he remarks, “it is perhaps safer for the present to attribute the diastole to that power by which a muscle reverts from the state of contraction to that of relaxation, and which I shall, for the sake of avoiding circumlocution, designate by the term *elasticity*.” Now, this diastole Dr. Hope terms active, but let it not by any means be understood that this diastole is the same as that which I contend for. Again, Dr. Hope says, “the systole is followed by a diastole, which is an instantaneous motion, accompanied with an influx of blood from the auricles.” I have now only given what we may consider as mere opinions of Dr. H. but in the following we have in his own words also an account of an experiment. “I found the auricle to contract first, not slowly, but with a motion so rapid as to be almost instantaneous; the moment the fluid reached the ventricle the latter was seen to *start up* evidently by the contraction of its fibres on the fluid which it contained, and *not by passive dilatation*. This more fully proved at a later period of the experiment, when the action of the heart was from time to time suspended, and the ventricle lay quiescent, though *partially distended with blood*, for then the auricle often made two or three contractions which had no stimulant effect on the ventricle, while a fourth, not more violent than the preceding, and therefore not injecting more blood, caused it to spring up in the manner already described.” Dr. Hope then unquestionably saw and remarked what I consider to be the active diastole. This very “starting up” of which he speaks, I regard as an active diastole, and such it must be regarded, unless we grossly misinterpret its character; his own words, in fact, are so plain on this subject, that they need no comment to show that he most assuredly saw the heart dilate, but as this probably did not agree with his preconceived notions, he did not see it to advantage.

Dr. Hope has seen the ventricle start up by the contraction of its fibres, “*and not by passive dilatation*.” Dr. Robinson felt the

ventricles *suddenly spring dilated with surprising force;*" have these gentlemen, then, not seen and felt exactly the same thing? i. e. have they not observed an active diastole of the heart? Certainly they have.

Dr. Hope has also afforded us another evidence in favour of the active diastole of the heart; he says, "the ventricle lay quiescent though partially distended with blood, for then the auricle often made two or three contractions which had no stimulant effect on the ventricle; while a fourth, not more violent than the preceding, and therefore not injecting more fluid, caused it to spring up in the manner already described." Here, then, we perceive that without the power to dilate actively, the auricles could not distend or fully expand the ventricle. Mr. BRODIE, and many other physiologists have witnessed the same want of power in the auricles; but they did not recognise that a diastole and not a systole followed the contraction of the auricles. I have seen the auricles contract and dilate in animals as many as seven times for one of the ventricles when the lungs were collapsed, but when respiration was maintained by artificial means the ventricles recovered to a considerable extent their power of acting. "The fourth contraction," says Dr. H. "caused the ventricles to spring up." What an illogical conclusion is this! how easily refuted! as if, indeed, the power of the auricles were the cause of the dilatation of the ventricles.

Dr. Hope supposing that the diastole follows the systole, speaks of blood entering the ventricles:—"The systole is followed by a diastole, which is an instantaneous motion, accompanied with an influx of blood from the auricles by which the ventricles reëxpand." This I know to be incorrect as a general rule; in some animals I have no doubt blood may enter the ventricles at the commencement of the repose from the auricles, but in my own experiments I have seen the ventricle of the frog's heart after contraction, small, pale, and void of blood, and suddenly it would "start up" and instantly receive blood and expel it again, and suddenly return to the state of repose.

In contracting, the heart is thrown into a state from which it rebounds, or falls back again, as Dr. Robinson described it, to the "stillness of death," and although in the regular or natural frequency of action this is but a moment of repose, yet so perfectly at rest are the ventricles, that this time of repose, even though it be but for the third of a second, is so well marked and evident, that we are always struck with it in observing the action of the heart. What is meant by the "stillness of death" will be understood when the heart is observed just when it is removed from an animal after its life has dis-

appeared, or in observing a heart in action, it will be perceived that the time of repose becomes longer as life declines. When an animal is struck on the head, and in this way made insensible, on opening its thorax and pericardium we find the heart in a state of rapid and violent action; in a short time it becomes slower and more regular in its movements, the times of repose become gradually longer, until finally the scene closes and all is at rest. The heart however undergoes no sudden change in its appearance. The repose in death resembles the last repose in life, except in its duration. On cutting through the ventricles of the heart soon after they have died, we find in some cavities of considerable size, in others the walls closely approximated. In the latter state I have found the hearts of birds, frogs, and some other animals; while in others again, the cavities were much larger, but capable of becoming much more capacious.

As the heart then, in many cases, presents the ventricles by no means dilated in the state of repose, and consequently containing but little or no blood in that state, it is evident, I think, that all who have described the diastole of the ventricles as preceding the state of repose, and succeeding the systole, have greatly erred. The ventricles unquestionably return to the state of repose with some force, and all the appearance of being contracted in that state is absent; the ventricles really appear at rest, and the form which they have then is not different from what they present soon after death: this is in my opinion a state of relaxation as complete as that which any other muscle of the body enjoys, but the appearance here is somewhat different, for the ventricles feel firm and rather unyielding. The ventricles then, in the state of repose, I do not believe to be under the influence of any power tending to dilate or contract them, and here I must differ from Dr. Robinson, who says “the antagonizing powers were merely in equilibrio,” or that “probably the contracting power predominated.” This opinion, it will be seen, quadrates perfectly and without any forced effort, with the result of my experiments on the structure of the heart.

The active diastole of the auricles, though less striking than the diastole of the ventricles, is notwithstanding not less real. It is however not powerful like that of the ventricles, but it happens equally quick with it. The active diastole of the auricles did not escape the notice of Magendie, who remarks, “I have said that the blood of the three veins that are in the right auricle makes a considerable effort to penetrate into it. *If it is contracted* this effort has no effect, *but as soon as it dilates* the blood enters its cavity, fills it completely, and even distends the sides a little; it would immediately enter the ven-

tricle if it did not contract itself at this instant. The blood, then, confines itself to filling up exactly the cavity of the auricle; but this very soon contracts, compresses the blood, which escapes into the place where there is least compression; now, it has only two issues—1st, by the vena cava; 2d, by the opening which conducts into the ventricle. The columns of blood which are coming to the auricle present a certain resistance to its passage into the cavæ or coronary veins. On the contrary, it finds every facility to enter the ventricle, since the latter dilates itself with force, tends to produce a vacuum, and consequently draws on the blood instead of repulsing it.” The same is true for the opposite side of the heart. I have here quoted at length the opinion of Magendie, not only in relation to the diastole of the auricles, but on other points of much importance, because I am convinced, by repeated observations on the action of the heart, of their correctness.

In the 12th Vol. of the Philadelphia Journal of the Medical and Physical Sciences, (for 1826,) Dr. HAYS published his views on the forces by which the blood is circulated. On this subject he observes, that “in vain some physiologists have contended that the heart is dilated, and does not dilate itself, and that this dilatation is absolutely passive; the dilatation of the heart is a true effort, an active movement,” &c.

Dr. Robinson says, “the diastole appeared to commence in the venous sinus, and pass without interruption and with immense velocity to the apex; the systole pursued the same course with equal velocity.” There is then no alternation according to this gentleman in the action of the auricles and ventricles; they are in a state of repose at the same time, they dilate at the same time, they contract at the same time only with this difference, that action always commences in the auricles and extends into the ventricles without interruption.”

The description of the action of the heart given by Magendie appears to me to be more in accordance with facts than that of Dr. Robinson. Dr. Hope’s opinion on this subject is less exceptionable than Dr. R.’s. He has not represented phenomena as they appeared to him, out of their natural order, but he failed exceedingly, as I think I have already shown, in not recognising them in their true character: he admits that the systole of the auricle is followed by the dilatation of the ventricle; but he erroneously considered the diastole thus produced as the consequence of the preceding auricular systole, and not what resulted from the “true effort,” “the active movement” of the ventricle itself. He also mistook the repose of the ventricles for a state of distention; which indeed could not be called with

propriety a state of repose; and the collapse of the heart after the systole, he mistook for an active diastole, and by this last error he was led into false principles. Dr. R. however, has not expressed his opinions without doubt, and if there be any room to object to his having ventured to institute principles, I think it must be, that he never extended his observations beyond the case which he has published. Leaving the views then of these gentlemen for the further examination of those who may be particularly interested in the improvement of auscultation, I now return to the subject with which I am at present more particularly interested, but here again I find myself opposed to the opinions of Dr. R. in a new point of view.

“While Bichat,” says Dr. Robinson, “affirms that the heart dilates with a force which no effort of the hand could prevent, is it not surprising that he has neglected to supply a power so great and so obvious to the elucidation of that obscurity of the venous circulation, on which, he acknowledges, authors have hitherto shed few rays of light; to you it is unnecessary to demonstrate that the pressure of the atmosphere on the veins external to the cavities must be propagated to the termination; that the cavities being always full, there is a continued pressure on the vessels within them; add to this the powerful dilatation of the heart, auricles and ventricles coöperating in the action, as I have seen them, and you have all the requisites of a powerful sucking-pump, operating perpetually on the venous system.”

Dr. Robinson’s surprise that Bichat did not apply the active diastole of the heart to the “elucidation of the obscurity,” &c. is easily accounted for. Bichat viewed the diastole of the heart in a manner very different indeed from Dr. R. Bichat did not believe that the auricles and ventricles coöperated in the dilatation of the heart; how then could he, indeed, look on the heart as a “powerful sucking-pump, operating perpetually on the venous system;” for to act as such, I contend the auricles and ventricles should dilate simultaneously; now this I also contend they never do.

I may still further notice the argument of Dr. Robinson in favour of his opinions, “founded on the structure of the heart itself.” “Whoever,” he argues, “inspects with candour and attention the structure of the valves, will find it difficult to persuade himself that they are adequate to the function generally assigned them; he may easily ascertain that they offer an impediment to the reflux of the blood, but hardly that they afford a complete obstruction; but as the contraction of the auricles is less powerful than that of the ventricles, such reinforcement seems necessary to prevent reflux.”

I have, nevertheless, examined the hearts of many animals with

“candour and attention,” and still I cannot persuade myself that they are not adequate to the function which the illustrious Harvey first assigned them, and which I am satisfied they will be regarded as executing by all who examine them.

The contraction of the auricles always aids in filling the dilating ventricles, and is, I think, the principal cause. I admit, of course, that atmospheric pressure would cause a fluid to rush through an opening into an exhausted vessel; but I cannot, on this account, see any good reason why indeed atmospheric pressure, and not the auricular contraction, should cause blood to pass from the auricles while contracting into the ventricles while dilating. The systole of the auricles is prompt and sufficiently powerful to throw blood into the ventricles; it commences an instant before the diastole of the ventricles, it is in full force when the latter commences; and when the systole of the ventricles is in operation, the auriculo-ventricular valves are closed, and the diastole of the auricles commences.

That atmospheric pressure is calculated also to cause blood to enter the auricles when they are dilating, is what cannot be denied; it certainly does not oppose the movement of the blood into the auricles, but if from other causes the blood move with sufficient velocity, as I think it does, why assign an effect entirely to atmospheric pressure which it only produces in part.

Structure of the heart.—Believing that the structure of the heart must be understood before its action can be explained, I undertook to examine it at a time when I was not aware of the exact state of knowledge on the subject. After several experiments, I found that the sheep’s heart, boiled slowly in a solution of pearl-ash, answered my purposes very well. As there is still further room for investigation on the subject, I shall give a brief account of the manner in which I attempted to unfold the heart.

On raising a few fibres on the external surface of the heart, I found it easy to detach them from the substance of the ventricles, tracing them from the base towards the apex. I commenced on the surface of the right ventricle, the fibres are all spiral, running from right to left over the anterior surface, and back again from left to right on the posterior surface, until finally, after two or more turns, they cease at the apex; these are the external fibres, which on being raised let into view those which are below them, and these, gradually, as we descend into them, are found to lie more transverse, but still spiral. Nothing like a laminated or fasciculated structure is observable, and the fibres lie very close to each other. The most superficial fibres extend to the apex, the most prominent part of which they constitute;

those which are next beneath, extend also to the apex, into the composition of which they enter, and so on with others. The external fibres, at the very summit of the apex, are continued into the left ventricle, and there form the surface immediately under the lining membrane; those which I have spoken of as lying beneath the most superficial and external, hold the same relative position to the superficial internal, so that a certain portion of the fibres may be found composing the external and internal surfaces of the left ventricle, and these fibres, common to both surfaces, are the same and continued.

Continuing further to unfold the ventricles, it is found that the fibres fall short of the apex by degrees as we descend into the structure, until finally we find many of them confined to the composition of the base.

In the course of the unravelling, for such it may be fairly called, the anterior wall, which is composed of fibres to a great extent common to both ventricles, is removed. The right ventricle, however, is not composed entirely in this way; there are fibres on its internal surface which are common to it and the septum.

Having arrived at the substance of the left ventricle which is peculiarly its own, that is, after all the fibres which are common to the external part of both ventricles are removed but not broken, it is very easy to finish the unfolding, when it will be perceived that all the fibres intermediate to those which were first mentioned, after winding around twice or more then take a direction upwards, they enter into the composition of the *columnæ carneæ*.

We may consider most of the fibres as originating at the base of the heart wherever there is cartilaginous matter; but many of the fibres arise from the inner surface of the ventricles, and running out at the auriculo-ventricular opening become superficial and external after having given rounded margins to the cavities from which they passed; on the surface they run the course which was first described.

The termination of the fibres may also, in a great degree, be traced to small tendons, or cartilage looking into the cavities, or placed at the summit of the septum, where also the auricles are attached.

As the superficial fibres often wind around the ventricles two or three times before their spiral course terminates in that which is straight in the *columnæ carneæ*; so indeed do all the fibres beneath them. Suppose a fasciculus of these fibres to extend the course I have pointed out, then it must be seen that it may be represented by a coil of wire, the inner part of which is continued in a straight direction, and at right angles with the coil; by depressing the extremity of this wire, which represents the continuation of the fasciculus

in the columnæ carneæ, the coil will be converted into a conical spire, perpendicular to which the straight part of the wire still remains. Suppose another coil, smaller in diameter and similarly formed, be introduced within the first coil, and its straight wire be depressed somewhat less than the first, this will represent the next order of distribution, and so on. Attending to what was said in the general description, and retaining this mode of illustration in mind, it may be perceived that the ventricles are composed of muscular coils, disposed in spiral and somewhat conical form, that the spires become shorter as they are less superficial. But as they become less superficial, it must be remembered that the inner straight continued part of the coils become less perpendicular, and finally, in the most deep-seated, it forms a very acute angle instead of the perpendicular before described.

I have not yet obtained results in my experiments on the auricles so satisfactory as to induce me to attempt a description of them. This however is evident to me, that the fibres of the auricles and ventricles are perfectly distinct from one another. In one case out of seventeen I found a strong fasciculus of the fibres of the right auricle perfectly identified with the structure of the ventricles: the connexion between them was made by a distinct column about three-quarters of an inch long.

We often perceive muscular columns or bands extending from one side of a ventricle to the other; I have observed that their direction is always oblique, and not directly transverse from one side of the cavity to the other, under which circumstance they would greatly embarrass the diastole of the heart. These bands do not make it more difficult to examine the structure of the heart, as might be at first sight supposed. Even the net-work, which the ventricles sometimes present on their inner surface, will yield satisfactorily if the heart be properly prepared.

I am not prepared to offer an opinion as to the manner in which the diastole of the heart is produced. I would therefore merely ask, is it the consequence of muscular contraction? The only way in which I can perceive that the diastole of the ventricles may arise from muscular contraction, is that all the fibres of the heart are stimulated to contract at the same time, but we know that the internal surface of the heart is more irritable than the external, and this can be proved satisfactorily. It is the muscular fibres of the internal surface, then, that are more irritable than the external surface; but it has been shown that there is no interruption or separation of conti-

nuity between the external and the internal muscular fibres. It appears from this that one part of a muscular fibre may be more irritable than another part. Now, if this be true, it may also be true, that one part of a muscular fibre can contract quicker than another part. Let us then suppose that the *columnæ carneæ*, which constitute but a small portion of the entire length of the fibres of the heart, is more irritable, and contracts more readily than the spiral part, would the ventricles on this account be thrown open suddenly, and closed a little more slowly, by the more gradual and superior power of the spiral fibres?

I have been to a considerable extent anticipated in my views of the structure of the heart by LOWER, who published his account of it in 1708.

Influence of respiration and of the active resiliency of the lungs in drawing blood into the thorax.—The experiments of Dr. Barry leave but little doubt I think, that inspiration, under *some* circumstances, tends to draw blood into the thorax; but I am induced to believe that he has greatly overrated the results. My object at present is not to analyze Dr. B's views, but to attempt to show in a few words, how far we are to regard atmospheric pressure and the expansion of the thorax, as calculated to influence the motion of the blood in the veins.

Speaking of the powers which circulate the blood in the veins, Dr. B. asserts, “of these powers the pressure of the atmosphere is by far the most *intense* in its degree, the most *constant* in its influence, and the most *unvarying* in its amount. It is that without which the circulation *could not be maintained beyond a few moments.*” We shall presently see how Dr. Barry has attempted to verify this assertion, with but little success, and how the slightest evidences in its favour have been regarded by him as conclusive, while the want of them never, for a moment, elicited from him an expression of doubt as to the correctness of his doctrine, in the full extent to which he has urged it.

As it at once opens to view the ground-work of Dr. Barry's theory, I quote the following part of his “argument drawn from anatomy.” “When the chest is enlarged by the act of *inspiration*, air rushes in through the trachea, to distend the air-cells, and force them to occupy that space in which the expanding parietes of the thorax tend to leave a vacuum. But as it is evident, that the air would follow the expanding sides of the chest much more readily if there were no cells to be distended, and as it is an unalterable law that all liquids in communication with an enlarging cavity, will be pressed towards it

if exposed at the same time to atmospheric influence, it became presumable that blood would be forced into the thorax through the cavæ during inspiration.”

I make no objection to this argument; it is well known to every anatomist how powerfully elastic the substance of the lungs is, consequently the tendency which it constantly has to collapse, and to oppose a distending agent. When the thorax is expanding in inspiration, it is certainly tending to the production of a vacuum within, and the air rushing in through the trachea and its various ramifications to fill the vacuum as fast as it is formed, meets a resistance in the collapsing power of the lungs; now, as the power of resistance in the lungs is something opposed to the expanding power of the thorax on the one side, and to the pressure of the atmosphere on the other, we at once perceive strong reason to suspect, that all the veins communicating with the cavity of the thorax, and exposed to the influence of atmospheric pressure from without, are liable to have the blood which they contain pressed into the great venous trunks and the auricles of the heart when they dilate.

Dr. Barry's experiments to prove the production of a tendency to a vacuum in the chest during inspiration, I must make known in fewer words than he uses. 1st Experiment. A horse was thrown upon his right side, left jugular vein exposed, tied below its middle, opened an inch below the ligature, a large flexible catheter introduced into the open vein and directed towards the heart. To the other extremity of the catheter a spiral glass tube was connected, the extremity introduced into a vessel containing coloured fluid which ascended through the tube into the vein, and probably into the heart, during inspiration. Blood regurgitated into the tube when the respiration was hurried, but returned into the vein at the next inspiration. This I call a mere imitation of what we observe in the jugular veins of mammalia, and sometimes in the jugular veins of persons in coughing, laughing, &c. where the blood is forced into the veins of the neck, and drawn back again when inspiration is made. In the report made to the “Royal Academy of Sciences, Paris,” upon “Dr. Barry's Memoir,” by Baron CUVIER and DUMERIL, the observations of RUDIGER, SANTORINI, HALLER, VALSALVA, MORGAGNI and M. MAGENDIE, on the progression of the blood through the great veins towards the heart during inspiration are alluded to, not one of whom it appears accounts for this phenomenon correctly. To Dr. Barry then belongs the credit of having pointed out the mechanism by which it is effected, which will be further seen by a short notice of his second experiment. 2d Experiment. Two tubes ingeniously contrived

introduced into the cavity of the thorax, one on each side of the posterior extremity of the sternum, the animal being on its back. The other extremities were immersed in coloured liquid. The tubes penetrating into the cavities of the pleuræ made a communication between them and the external fluid. The fluid rose rapidly in the tubes during inspiration, and was drawn into the chest. I may also now give a brief account of Dr. B's 3d experiment. This was made with a view to ascertain whether a tendency to a vacuum was also produced in the bag of the pericardium. Having succeeded in introducing a tube into this bag, he proved that a fluid ascended through it during inspiration. These experiments leave no doubt as to the production of a tendency to a vacuum in the cavities now alluded to; but while this is admitted as true, it must be acknowledged that the power which they exert in drawing to them blood from the veins is a subject which still requires to be investigated. Dr. Barry lays an estimate on it which no person conversant with anatomy and the physical sciences will receive as correct, and while the Baron Cuvier and professor Dumeril in reporting on his memoir, speak in the highest terms of his experiments, they evidently have not included the opinions of Dr. Barry in their commendation.

In noticing the active resiliency of the lungs, let it not be supposed that I am giving my support to Dr. CARSON's doctrine. I believe in the active resilience of the lungs, and so does every person who is at all conversant with anatomy, but I give but little credit to the fine-spun doctrine of Dr. Carson.

As the lungs are highly elastic and in a forced state of distention while they remain sound during the life of an animal, so they have a constant tendency to collapse, but in order to do so, they should leave a vacuum in the cavities of the pleuræ, and also I think in the bag of the pericardium. It is very evident they have not the power to do so, and they must be regarded therefore at least in the quiescent state of the thorax, as leaving no empty space between them and the walls of the thorax. The collapsing power of the lungs is considerable, but no proper estimate has been made of it; we know how forcibly it draws up the diaphragm; it draws, we have reason to believe with equal power on the hard thoracic walls all around. Now as there are two great cavities separated from one another by the mediastinum, it is perfectly in accordance with experience to suppose, that the collapsing power of the lungs acts with as much power on the mediastinum as on any other surface with which the lungs are in contact. But the heart and pericardium are to a great extent concerned in opposing the collapsing power of the lungs; the pericardium is also a

sack, and its capacity is not filled by the heart, Dr. Carson therefore supposes that the collapsing power of the lungs keeps the pericardium in a *constant state of extension*, and that an antagonizing power to the muscular fibres of the heart is thus produced, which operates constantly to dilate the heart; I certainly cannot agree with the learned author of this doctrine, and think he has betrayed great deficiency of knowledge in pneumatics in forming it. Had he been better acquainted with this branch of philosophy, his doctrine would doubtless never have appeared in print. But, let us see in what more particularly his error consists. The collapsing power of the lungs is, as I have already said, considerable. Dr. Carson made experiments to ascertain its amount, and found that it was equal to a column of water seven inches high, its ratio then to atmospheric pressure is nearly as 1 to 56; its tendency to produce a vacuum is also in the same ratio, it cannot therefore with so great a power against it, form a vacuum.

I have not made experiments expressly with a view to measure the collapsing power of the lungs in any class of animals, but from general observation on the subject, I think the following opinions correct. The collapsing power of the lungs increases in an unknown ratio as the lungs are inflated from the state of entire collapse, to the size which they ordinarily occupy in any animal; beyond this their power of resisting a distending power increases in a far greater ratio than that before alluded to. The air rushing into the lungs while the thorax is expanding, distends the lungs and makes them keep pace with the expanding thorax, but when the air does not pass through the rima glottidis in volume commensurate with the increase of capacity produced in the thorax, then several things are liable to happen; there must be left a vacuum in the cavity of the pleuræ, or the diaphragm must be caused to move upwards to supply the deficiency of air; or blood in the veins, external to the thorax, must move in, or the air in the lungs must expand by its elasticity and dilate the lungs. If a very sudden and powerful effort be made to draw in air, it is probable, I think, that all of the preceding effects, except the first, would follow at the same time, but no one or two would subside before the others, they would all be terminated when any one of them restored the equilibrium of atmospheric pressure. Further, the effect which required the least power to produce it, would precede all the others in its extent. Here we want certain data, but we may form an opinion as to the forces concerned. Suppose the resilience of the lungs in such a case to be fifty; expansive

power of the air three hundred; the latter then would prevail, and prevent the production of a vacuum from the very commencement. The air thus rarified would however only resist external pressure, let us suppose as three hundred to three hundred and ninety. The diaphragm would, therefore, be pressed up into the thorax in an arched form, the blood would likewise be obliged to rush in, and collect in the cavæ, so that we should have all these effects produced at once, but not a vacuum. Now, suppose a slow inspiration be made, the effects, I think, shall be somewhat different from the preceding; the entrance of the air into the lungs shall expand them as freely and as quickly as the thorax would expand; the diaphragm instead of being pressed up, would be forced down, an evidence that the lungs under the last condition fill the cavities tightly from the commencement to the end of ordinary inspiration. I see no reason then for supposing that during ordinary inspiration, blood is moved into the thorax by atmospheric pressure. Nor has Dr. Barry ever proved that it does. Read his own words. “The connexion between the motions of the liquid in the tube and respiration cannot be satisfactorily observed while the horse is standing, because his breathing when in the erect posture, and at rest, is scarcely, if at all, perceptible.” The circulation, however, we must presume, is going on rapidly in every part of the body, and according to Dr. Barry, even when a gum elastic catheter is introduced through one of the jugular veins, and passed almost as far as the superior cava, and through which no water will ascend, still Dr. Barry asserts, that atmospheric pressure is more powerful than any, or all the other forces in moving the blood through the veins.

“Here it is essential to remark, that if the communicating tube be introduced into the femoral vein of a dog or horse, and pushed no further towards the heart, inspiration will produce no effect upon the liquid in the cup, because the relative vacuum of the thorax can be filled up from the other veins of the animal’s body.” I will merely quote another passage from the report of the Baron Cuvier and Dumeril on his memoir.

“Your commissioners, however, must not conceal that in their *particular* opinion the act of inspiration which *appears* to produce a vacuum within the thoracic cavities of animals having lungs, is not sufficient to explain the motion of the blood in the veins of fishes, and of some reptiles in which the mode of respiration is different.”

Let any vein, or number of veins be tied as near the heart as is possible, it will be found that on puncturing them, a stream of blood

will issue and continue to flow perhaps as long as there is life in the animal; or if they be not punctured, it will be found that they become full and greatly distended below the ligature, showing conclusively that atmospheric pressure is not the great cause of the return of the blood from all parts of the system. Even Dr. Carson admitted the strength of this objection against the extent to which he felt disposed to urge his doctrine. To produce additional proof on this point I deem unnecessary. It may be found in Harvey's valuable work, "*De Motu Sanguinis*;" Haller's *Physiology*; M. Magendie's *Physiology*; Bichat's *Anatomie Générale*, and indeed in almost every modern work. I can also refer with great pleasure to Arnott's *Elements of Physics*, second American edition.

I am now constrained to conclude this paper, in which my sole object has been to show the necessity of further investigations respecting the forces by which the blood is moved, and to expose the errors of those, as they have appeared to me, who, in their zeal for the advancement of medical science, have put forth doctrine upon doctrine, hypothesis upon hypothesis, error upon error.

Philadelphia, April 3d, 1833.

ART. VI. *Non-existence of Vagina, Remedied by an Operation.* By JOHN C. WARREN, M. D. Professor of Anatomy and Surgery in Harvard University, Boston.

A YOUNG WOMAN, of twenty-three years old, well constituted, applied to me for a natural malformation of the organs of generation. On examining, I found the os externum wanting, and so far as could be judged, there was no vagina. The aperture of the urethra was well formed; the clitoris and nymphæ appeared as usual. The breasts and all the other external parts were natural; but no uterus could be discovered on a careful examination by the rectum, either by Dr. CHANNING, Dr. HAYWARD, or myself. The patient had never experienced any unusual enlargement of the abdomen.

Believing it possible that the uterus might exist, although not sufficiently developed to be discoverable by the rectum, I determined to comply with the patient's wish, and attempt the formation of an artificial passage: for this purpose she entered the Massachusetts General Hospital in January last.

The patient being placed on her back on the edge of a bed, feet each in a chair, I attempted to pass a probe in behind the urethra, but found this impracticable, there being no aperture or excavation. The forefinger of the left hand was introduced into the rectum, and a small probe-pointed bistoury employed to make an aperture in front of the rectum as near as might be in the situation of the fossa navicularis. This was accomplished, but I was disappointed in finding no cavity behind or within this aperture. It was necessary, therefore, to proceed with the same instrument, the convexity being towards the rectum, to dissect from behind forwards. In this way an opening was made sufficient to admit the point of the finger. The dissection being carefully continued in the same manner, a passage was formed about three inches long, and wide enough to admit the finger.

The bleeding was considerable; this was arrested by the introduction of a tent. Subsequently to the operation she had much fever, pain and tension of the abdomen, and suppression of urine. These symptoms gradually disappeared.

The wound was carefully dressed by the introduction of a tent daily. The suppuration was considerable; after it had subsided the tent was removed, and the passage exhibited no disposition to close.

On examining subsequently to the cicatrization of the wound, something like labia of the os uteri were discovered.

After her recovery she had some appearance like the catamenial discharge. She then left the hospital. Four weeks afterwards she was seen by Dr. Hayward; he found the aperture and cavity open, and she had had a sanguineous discharge resembling the catamenia; and he thought he could distinguish something like an uterus.

Boston, July, 1833.

ART. VII. *Some remarks upon Ataxic and Intermittent Fevers.* By JOHN B. ZABRISKIE, M. D. Physician to the King's Co. Almshouse, New York.

BY ataxic or congestive fever is generally understood a fever in which cerebral and nervous symptoms predominate. It is attended with coma, a low delirium, or stupor, spasms and twitching of the muscles. BROUSSAIS defines ataxic fever to be a gastro-enteritis with considerable irritation or phlegmasia of the brain. BOISSEAU describes it as follows:—"Ataxic fever is an encephalitis, some-

times primitive, more frequently secondary, generally accompanied with gastro-enteritis, or supervening in the course of inflammation of the lungs, uterus, peritoneum, &c.” The difference between the views of these celebrated physicians is that one believes the primitive cause of this fever to be seated in the brain, while the other considers it to be seated in the stomach and intestines. Boisseau, while contending for its cerebral origin, says that it is generally accompanied with gastro-enteritis, and Broussais allows the constant existence of irritation or phlegmasia of the brain. Post mortem examination shows us lesions both in the stomach and the brain: hence the great question which arises is, which is the primary irritation? nor is this question idle while we allow our views of the seat of a disease to have any influence upon our practice.

Ataxic fever prevailed epidemically in the King's County Almshouse in the spring of 1833, commencing in April and continuing until the end of June. The fever generally assumed a remittent type, in some cases it was intermittent, in others the remissions were slight, thus assuming the character of continued fever. In every case the gastric symptoms were very manifest, and generally were the first which appeared. The disease commonly commenced with nausea, loss of appetite, uneasy feeling at the stomach, and general languor. To these would succeed pain in the extremities, head or back, often severe colic pains in the bowels. This state continued in some cases for two or three days, in others a shorter period. A chill would succeed, which was followed by fever. Pains and heaviness were felt in the head with a great disposition to sleep, the conjunctivæ became red, the face flushed. The pulse at first was quicker and sometimes fuller than natural, but soon became weak and slow, the tongue was white, often with a red tip, generally moist. The epigastrium was tender to the touch, and the nausea increased especially upon taking much drink. These symptoms were increased in the afternoon, and had a morning remission or intermission. If the fever continued the symptoms went on increasing, stupor or a low muttering delirium ensued, in some cases amounting to a complete coma. In one case deglutition was suspended, and spasms of the muscles existed resembling tetanus; partial spasms and subsultus tendinum were frequent. The fæces and urine were often discharged involuntarily. The epigastrium in many cases was very tender, so much so that the patient could scarcely bear to have it touched. The heat of the trunk and head was increased, while the extremities were often cooler than natural.

Some cases of pneumonia existing at the time put on the character

of ataxic fever, and others were accompanied with synocha. But in all those cases where ataxic fever accompanied pneumonia, symptoms of gastric irritation appeared first. In one case the fever was evidently changed into ataxic by the operation of a powerful purgative. There were cases of intermittent fever also at the same time without symptoms of irritation of the brain.

No particular cause could be assigned for this fever. The diet of the house remained the same, and as much attention was paid to cleanliness as at any other period. It was confined to this establishment, and did not appear in the surrounding country. It evidently was not contagious, as those who took care of the sick, who slept in the same rooms with them, and had every communication with them, did not appear to be more liable to it than others. It is proper however to state, that although the fever did not appear in the surrounding country, still many persons were affected with this somnolence, some complained of falling asleep at their meals or at their ordinary work, and their greatest exertions were insufficient to resist it. This was always promptly relieved by bleeding in every case which came under my observation.

Although pathological anatomy has not advanced to sufficient perfection to show us upon what particular lesion each variety of fever depends, still there can be little doubt but that the difference in the character of fevers depends either upon the organ affected, the tissue of that organ, or the intensity of the irritation. Bilious fever is now known to be a gastritis, that form of typhus to which the name of dothineritis has been given is an inflammation of the glands of Peyer and Brunner, dysentery has its seat in the colon, and it is probable that when the science of pathology is more advanced, every fever will have its seat ascertained. We see that inflammatory fever puts on different characters according as it has its seat in different organs. Thus rheumatic fever has a full, bounding pulse, the heat of the whole body is much increased, the sweating is often profuse and has a peculiar odour. Gastritis has a small, chorded pulse, there is often great prostration of strength, the heat of the trunk is increased, but the extremities are often not much warmer. Pneumonia has a fever different from either.

In diseases which have their origin in the stomach and intestines, and where there can be no doubt concerning their seat, we see as great disturbance of the functions of the brain and nervous system as in this fever. The sympathy and nervous connexion between the stomach and cerebral organs are so great that the former cannot be seriously affected without influence upon the latter. We see in cholera

how much the nervous system sympathizes with an intense gastric irritation, producing stupor, pain in the head, deafness, redness of the eyes, cramps and spasms of the muscles. We see the violent head-aches, the melancholy, and mental anxiety consequent upon dyspepsia. In bilious fevers and gastritis we often find delirium, coma, head-ache, vertigo, and dimness of vision. We also see the same effect produced by poisons taken into the stomach which must act upon this organ. Although my observations are much too limited to pronounce definitely upon the seat of ataxic fever, and especially as celebrated physicians have asserted that cases have occurred where the gastric symptoms were very slight, and where no traces of lesion in the stomach existed after death, yet in all those cases which came under my care I do not hesitate to say that the disease had its seat in the stomach, and for the following reasons:—1st. The disease in every case commenced with symptoms of gastric derangement, as nausea, anorexia, pain, or tenderness of the stomach. 2d. The gastric symptoms continued very conspicuous throughout. 3d. Whatever irritated the stomach increased the fever, as emetics, purgatives, and other irritating medicines. 4th. Those remedies which reduce gastric irritation were found to be the most successful means of treating the fever, as local bleeding from the epigastrium, absolute diet, and diluent drinks.

In treating this disease most medicines appeared to aggravate the symptoms, and especially emetics and drastic purgatives. Many were cured by mucilaginous and acid drinks alone. Cups or leeches applied over the region of the stomach in some cases gave almost immediate relief, and removed the stupor and pain in the head much more quickly than when placed upon the temples.

I subjoin a few cases illustrative of the fever as it appeared in the Alms-house.

CASE I. Daniel Leake, aged thirty-eight, a lunatic, of a plethoric habit, was seized on the 12th of April with pain in his back, legs, and arms, resembling rheumatism. He complained of anorexia, nausea, and heaviness of his head, his tongue was slightly furred, and his pulse had a little quickness. He took a dose of Lee's pills.

14th. Much worse, very delirious, his eyes are red, face flushed, he lies in a continual stupid sleep except when roused, his pulse is slow, hands colder than in a natural state, his head and trunk warmer. He refuses all food, and has not much thirst. Considering his disease as a congestion of the brain, calomel was given internally followed by senna and salts, cups were applied to the temples, and sinapisms to the feet.

16th. His epigastrium is very tender upon pressure, he is very stupid, he has a difficulty of swallowing, tremor of the extremities, and a constant unintelligible muttering or groaning. Cups were applied to the epigastrium, and acidulated drinks were given.

17th. Complete coma, extremities are rigid, apparently a tetanic stiffness in the muscles. He is not able to swallow, is not roused by any thing except when pressure is made upon the epigastrium. His face is of a dark red or purplish colour, eyes red, hands and feet almost cold, his pulse is small and slow. Cups were again applied, but without his appearing to feel them.

19th. He lies in the same state, complete incapability of swallowing, an ulcer upon his leg has sphacelated, and the rigidity is greater, his body is covered with petechiæ.

20th. He died in the night.

The tenderness of the epigastrium, and this tenderness continuing after the patient was comatose, and every other part insensible, appear to point out the stomach as the seat of some extensive lesion, and the aggravation of the disease by purgatives appeared to indicate that this is the original disease, and that the other symptoms were sympathetic of this affection. The difficulty of swallowing was probably owing to a rigidity of the muscles of deglutition, as it appeared at the same time and increased with the tetanic contraction of the muscles of the extremities.

CASE II. Mrs. Cephra, aged about fifty, the nurse of the house, having had a jaundice for four weeks, was seized on the 22d of May with a chill accompanied with nausea and occasional vomiting, pain in the back and extremities. She took a dose of senna and salts which operated powerfully.

24th. The pain in extremities and back is better, but she still complains of the nausea and occasional vomiting. As she wished an emetic, which she stated she had been frequently in the habit of taking, I gave her one composed of ipecacuanha with a few grains of tartarized antimony.

25th. The nausea still continues, and appears to be rather increased since the operation of the emetic. She complains of pain in the stomach and head, of tenderness of the epigastrium, her eyes are red, tongue covered with a white fur, pulse quick. She had a considerable remission of her fever this morning, but towards evening her fever has increased, with quick pulse, hot skin, and thirst. Acid drinks, sinapisms to the feet, fomentations to the abdomen.

27th. Less nausea. Her attendants state that she has much fever and is very delirious at night, very restless, tossing about conti-

nally, yet through the day she is very much inclined to sleep. Her pulse is quick, skin hot and dry. The acetate of ammonia with a little laudanum was given through the night.

28th. Very sleepy, eyes red, tongue with red tip and brown centre, she has a dull pain in her head, and for the most part lies asleep. Cups to the temples and epigastrium, acidulated drinks.

29th. Tongue less red and moist, she has less pain, is not quite so soporose, otherwise the same. The same drinks continued.

30th. The fever is very severe, the epigastrium very tender. She refused to be cupped again, as the slightest touch over her stomach gave her pain, and as leeches could not be procured a blistering plaster was laid over each hypogastrium.

31st. Very stupid, the tongue brown, moist, red at the tip and edges, pulse small and slow, extremities cold. Calomel was given in a dose of five grains every hour for four hours.

June 2d. Her tongue is dry and a very dark brown, nausea, thirst increased. She was confined to a solution of gum Arabic acidulated with lemon juice. This state continued, the symptoms grew more unfavourable, the coma increased, and she became more debilitated till the fourteenth day of her sickness when she died.

This case illustrates the effect of the purturbating treatment in ataxic fever. As the errors of erroneous practice may often prove as instructive as the details of that which has been more successful, I have introduced the above case, of which I took particular notes. The senna and salts produced a nausea and vomiting, which were increased instead of being relieved by the emetic. The stupor was increased, and the tongue rendered brown under the use of acetate of ammonia and tinct. opii, and the calomel instead of relieving the system of bile, made the tongue dry, increased the thirst, tenderness of the epigastrium, and nausea. Cups gave more relief than any other means, but the tenderness of the epigastrium prevented their use a second time, and leeches had not been obtained. The blisters produced no good effect, and appeared to increase the heat, thirst, and gastric distress.

CASE III. John Laughen, thin, debilitated, with a constitution broken down by intemperance, was seized on the 20th of April with severe pain in his back and joints resembling rheumatism. Senna and salts.

22d. He is worse, has had a chill followed by a sensation of heat and thirst. His pulse is slow, his trunk warm, extremities cooler than natural, tongue covered with a white fur, he complains of tenderness and pain in the stomach, pain and heaviness of the head, and

a great disposition to sleep. Calomel was ordered to be given in five-grain doses every three hours.

24th. Lies stupid except when aroused, his eyes are red, tongue dry, brown. After taking two doses of the calomel he refused to take any more, and now obstinately refuses to take any medicine. Cups were applied to the epigastrium and temples.

25th. The same. Appears very much disinclined to answer any question, tongue not quite so brown. Acid drinks were given him, which he drank freely. Blisters were applied to the epigastrium and temples.

27th. More stupid, has taken the blisters off before they had any effect. Cups to the epigastrium, and the drinks continued.

31st. For the last four days he has been confined to acid drinks, during which time the stupor has gradually disappeared, the tongue is becoming clean, and although he appears dull and very much debilitated, the symptoms have gradually subsided. He recovered upon a moderate diet.

This man probably owes his life to his obstinacy in refusing to take medicine. From the bad effects of medicines in the former case, and the result of this, it must appear evident that the abandonment of the case to nature is the preferable mode of the two.

CASE IV. Eliza Peterson, aged twenty, athletic, robust, in the ninth month of her pregnancy, and expecting soon to be delivered, was attacked on the 17th of June with colic pains somewhat resembling labour. For this she took a dose of castor oil followed by an opiate, which relieved her for a time, but the next day it reappeared, and was again relieved by an opiate. That night she felt a severe chill, and the next day experienced the following symptoms:—Sleepiness, stupid expression of countenance, quick pulse, white tongue with red edges, thirst, great tenderness of the epigastrium, and pain upon pressure, pain and distress in the head, disinclination to answer questions. Acidulated solution of gum for a drink, and fomentations to the abdomen.

18th. Very stupid, comatose, answers no questions, and is not much roused by any thing except pressing upon the epigastrium, eyes highly injected, swallows drink when given to her, and has no dysphagia or rigidity of the muscles. Not being able to procure leeches, and fearing to apply cups to the epigastrium as it was so tender, I was obliged to confine the treatment to acidulated drinks, fomentations, and injections.

21st. After continuing three days in the above state she appeared to amend a little, she answered some questions, and appeared more

easily roused. Fifteen leeches having been procured, were immediately applied over the stomach, and before they fell off she appeared evidently better, she answered some questions rationally. Fomentations were applied after the leeches.

22d. Much better, has been sitting up, speaks rationally, eyes natural, tenderness of the epigastrium is almost gone, pulse more natural, tongue cleaning off. Mucilaginous drinks still continued.

23d. Convalescent. Has some appetite. Confined to a diet of arrow root she rapidly regained her strength.

Two weeks after this she was delivered of a small living child covered with a putrid bloody matter.

This was evidently a case of gastritis, as shown by the great tenderness of the epigastrium, the redness of the tip and edges of the tongue, and from the relief which was obtained almost immediately by leeching, and yet the cerebral symptoms ran as high as they could have done in any case depending upon cerebral origin. We see these also immediately relieved by the application of remedies for the gastric affection.

CASE V. Elizabeth Lewis, aged twenty, sanguine, gay, of a plethoric habit, after complaining a short period of languor, nausea, loss of appetite, was seized with severe pains in the bowels resembling colic on the morning of the 25th of June. To this succeeded a chill, followed by distressing pain in the head, and great somnolence. Her pulse was quick, tongue white with red tip and edges, she complained that she could not keep awake except when aroused by pain, her stomach was very tender, eyes red, face flushed. She was bled sixteen ounces, confined to mucilaginous drinks, and fomentations were applied to the abdomen.

26th. Feels much better. She says that the pain in her head and bowels with the somnolence and other symptoms left her soon after she had been bled.

CASE VI. Margaret Mercer, aged twenty-five, was brought to the house on the 29th of April. Her husband stated that she had had fever for some time, with a cough, pain in the chest, expectoration, and other symptoms of peripneumony. Two days before she had taken a dose of calomel and jalap, which had purged her very much, and that she had been much worse ever since, becoming stupid. She now presented the following symptoms. Stupor, almost amounting to coma, redness of the conjunctivæ, tenderness of the epigastrium, pulse quick, tongue white, cough frequent, little expectoration. Cups were applied to the epigastrium and chest, followed by fomentations and acidulated flaxseed tea for drink.

30th. Much better, stupor relieved, expectorates more freely. Same drink.

June 2d. The fever has left her. The cough continued for a short time, and she regained her health and strength.

In this case the fever was evidently changed from synochal to ataxic by the purgative, and the good effects of local bleeding were immediately manifested.

CASE VII. Mary Schröder, aged twelve, was seized on the 20th of June with a chill, followed by fever. She complained of nausea, pain in the head and stomach. She took some castor oil, which gave her some evacuations. On the 21st, when I saw her, I found her stomach tender, her pulse quick, her eyes red, tongue white, face flushed. She was very sleepy, and complained of pain in her head and back, of thirst, sometimes of nausea. In the morning she experienced a great remission of these symptoms, the pain and somnolence were almost gone, the pulse was very little quicker than natural, and the heat disappeared. About 1 o'clock, P. M. these increased without any chill, she became sleepy, stupid, and delirious. She complained of pain and the other symptoms, which went on increasing till night. These symptoms continued five days under the use of acidulated mucilaginous drinks, fomentations to the abdomen, injections and absolute diet; during this period they gradually disappeared, and she became convalescent.

Intermittent Fever.—Although the doctrine that intermittent fever is owing to a local irritation has been extensively taught, and the practice of treating them by local means adopted by many physicians of France and other countries, still this practice is but little followed in this country.

Almost every physician of extensive practice must have observed that local phlegmasiæ often accompany intermittents, and especially inflammations of the lungs, liver, and stomach, that these phlegmasiæ would often be aggravated by sulphate of quinine, bark, and other tonics, and that when means were used to reduce the phlegmasiæ, the fever would disappear. The caution so often repeated by writers upon intermittent fever, not to give bark when there are symptoms of congestion of the lungs or brain, was founded upon observation, even by those who considered the fever as essentially constituting the disease, instead of considering it as the symptom of a local inflammation.

Boisseau says it is certain that chronic intermittents, and especially of the erratic kind, are generally the result of a chronic phleg-

masiæ of the bronchia, lungs, or the pleura. That this is frequently the case there can be no doubt, but this fever is also symptomatic of other phlegmasiæ.

The following are a few cases of chronic intermittent, which resisted obstinately the treatment by sulphate of quinine, bark, and other febrifuges, but which were easily cured by local remedies. And where the fever did not immediately cease upon the use of local remedies, sulphate of quinine would immediately prove effectual, although it failed in the same cases before.

CASE I. Michael Trainer, aged twenty-two, of middle stature, dark hair and eyes, sanguine temperament, entered the house the 21st of September with the following symptoms. He had a regular quotidian intermittent, commencing between 1 and 2 o'clock with a short chill of about an hour's duration, followed by a paroxysm of fever, which was not very severe, and was succeeded by a sweating stage, which lasted most of the night. In the morning he appeared much better, and ate his breakfast with considerable appetite. During the cold stage he had a dry cough, which distressed him some, and he complained of a sharp pain in the right side upon taking a full inspiration. When he coughed during the night he expectorated. In the morning his cough was better. Percussion gave a dull sound over the lower part of the right lung; the stethoscope showed the respiratory murmur extinct in the same part. He stated that he had had this fever for three months, and that during this time he had taken purgatives, emetics, bark, sulphate of quinine, and other febrifuges in abundance, but without much benefit from any. Cups were applied to the right side of the chest, over the seat of the pain, and as he complained of costiveness, an ounce of castor oil was given to him.

22d. Has had no fever to-day, and the cough and pain in his side is much better.

23d. Has had a slight attack to-day. Two more cups were applied to the right side. From this time his cough left him, and he has had no more fever.

CASE II. Patrick Martin, aged twenty-two, a tailor, with pale face, light eyes and hair, apparently enfeebled by long sickness, entered the house with an irregular chronic intermittent of six weeks standing. It attacked him every day, during the paroxysm he complained of a sharp pain in the side whenever he made a full inspiration. He expectorated a thick mucus. Percussion gave a dull sound in the right side of the chest. For this he had been blistered upon his side, and had taken the usual remedies for intermittent fever.

Four cups were applied to the affected side. His fever immediately left him, his cough improved under the use of tincture of digitalis, and in a short time he left the house entirely well.

CASE III. Peter Stockholm, aged forty-three, tall, fleshy, of a sallow complexion, and leucophlegmatic habit, came to the Alms-house on the 15th of August. He complained of tenderness of the epigastrium, of tightness across his chest, of a cough without much expectoration, a pain even upon drawing a full breath, his pulse was full, tongue white, with a reddish border. His fever was a regular intermittent, coming on about 12 o'clock with a short fit of shivering, and ending in a sweating stage at night. The febrile stage was not very violent. For this he had taken sulphate of quinine, bark, Fowler's solution, &c. without any benefit. Three cups were applied to his chest, and an acidulated solution of gum was given him for drink; under this treatment his fever immediately left him, the tenderness of the epigastrium disappeared, and his appetite returned, his cough however remained. But being unaccustomed to restrain his appetite, his fever again returned, and again yielded to cupping. A large blister was applied over his chest, and the tincture of digitalis given internally, his cough improved upon this, and for some time he was better. He has since, however, had frequent returns of fever and of his cough, and which cupping alone relieved. I have frequently given him sulphate of quinine, but without any benefit, and on the contrary, it produced a sense of stricture in his chest.

CASE IV. Sarah Griffith, aged forty-five, entered the house 28th of December with a regular intermittent fever, accompanied with a violent cough and a dull pain in the chest. The febrile paroxysm commenced every day with an ague, and passed through a regular hot and sweating stage. She expectorated a thick, purulent matter, and complained of pain in her chest upon coughing, her pulse during the apyrexia was weak, her tongue white. Cups were applied to her chest, which relieved her of her pain and improved her cough, but her fever continued. A few doses of sulphate of quinine broke this up immediately, and her cough left her.

This case illustrates the remark, that although quinine is sufficient to break up a pneumonia accompanied with intermittent fever, and although at the same time would aggravate the cough and other local symptoms, still after these latter have been reduced, it may be given with great advantage. Another case illustrative of this may be found below.

CASE V. Mrs. R. aged forty, of slender constitution, nervous temperament, was attacked on the 20th of September with intermittent

fever, for this she took a purgative of calomel and jalap, and some doses of sulphate of quinine, the fever immediately left her, her appetite became voracious, she felt an uneasiness in her right side, and in the course of a week had her fever again. This was treated in the same manner, she continued in this state for several months, her fever returning from the slightest cause, the distress in her side increasing, her skin became sallow, the conjunctivæ tinged yellow. I found her in this state. She had a regular tertian intermittent commencing with an ague, during the days of the paroxysm she was confined to her bed, but during the interval she walked about and had some appetite. She complained of a tenderness of the right hypochondrium upon pressure, though not much pain, with some pain and uneasiness of the right shoulder, bitter taste of the mouth, white tongue with a slight tinge of yellow on the back part. A dose of calomel was given that evening, and followed by castor oil in the morning, and a large blister was applied upon the side.

The pain is removed, she feels much better; this day being the period of apyrexia, twelve grains of sulphate of quinine were given. This treatment immediately broke up the fever, and instead of getting it every day, week, or fortnight, she has not had it for ten months.

Bleeding in the cold stage of intermittents.—The practice of bleeding in the cold stage of intermittents was noticed in the medical journals a few years since, and in several numbers of the American Journal of the Medical Sciences. Many physicians immediately commenced the practice empirically, and with various success. Bleeding in every case, they succeeded admirably in some, while in others alarming symptoms ensued. This want of discrimination between those cases which were the proper subjects for this practice, together with its bad effects in certain cases, has led almost to the abandonment of a valuable resource in these fevers, instead of searching for the cause of the difference, and trying to find out in what cases this practice is proper. The same rules which respect bleeding in other cases apply here. In persons of a plethoric, full habit, with a strong pulse, who are not enfeebled by intemperance or by the fever, bleeding will often be found of great benefit, and especially if the fever puts on an inflammatory character. But where patients are enfeebled by intemperance, by the long continuance or the frequent recurrence of intermittents, and where the pulse is small and weak, general bleeding may give rise to alarming symptoms, and local bleeding is to be preferred. Having carefully noted a number of cases, I will subjoin a few.

CASE I. Having had repeated attacks of fever, which often put on an inflammatory character, I determined to try this remedy. I was seldom troubled with nausea, the tongue was generally white, and the pulse during the fever full and strong. I was bled during an ague, about twenty minutes after it had commenced, before the blood ceased to flow the ague ceased, and immediately after the operation I felt a glow of heat, and from that time the disease was conquered. I was not equally successful in all other cases.

CASE II. S. S. aged twenty-five, a person of an athletic constitution, sanguine temperament, had suffered under a very severe attack of bilious fever in the autumn. Having recovered from this he was subject to intermittent fever through the winter. He was much afflicted with pain in the head, often with nausea and vomiting of bile, and generally had an attack of the fever every fortnight or three weeks. His pulse was full and tense, tongue covered with a yellow or brown fur, and he often had great gastric distress. The sulphate of quinine, bark, and other febrifuges, would cut off the paroxysm, but would not prevent its return, although given freely in the interval. He was bled about half an hour before the expected return of the ague. It prevented it at that time, and it entirely left him.

CASE III. John S. aged about thirty-five, a man naturally sanguine, of a lively disposition, but whose circulation was now languid, and whose strength much reduced by the long continuance of severe and repeated attacks of intermittent fever. He suffered much from pain and gastric distress, and his system was much debilitated. He fainted during the operation, so that I could get only a few ounces of blood. The bleeding did him very little good, except relieving the pain and distress to which he was subject. The fever continued as usual.

CASE IV. Mrs. S. the wife of the last mentioned individual, was bled at the same time with the best effect, entirely relieving her of her fever. She was of a sanguine constitution, with a full pulse, and other marks of plethora.

CASE V. E. Hendricks, aged twenty-eight, athletic, of a gross habit, very strong and muscular, was also subject to frequent returns of intermittent fever. He had a great deal of pain in the head, nausea, and gastric distress, the fever put on an inflammatory character, the pulse was strong, and during the fever corded. He was bled so as to anticipate the paroxysm by an hour. It entirely relieved him, and his fever left him.

CASE VI. John Arr, aged forty, a man of intemperate habits, florid complexion, choleric temperament, was subject to an intermit-

tent fever, with a full and soft pulse, with much nausea and vomiting, and a brown tongue. He was bled to the amount of fourteen ounces, when he fainted. The fever came on about two hours afterwards, and was very severe. During the fainting fit he was seized with violent spasms. Since the bleeding he has been subject to the fever as before, though with less pain.

CASE VII. A man, aged thirty-five, was very much reduced by frequent and severe attacks of intermittent fever, his complexion was sallow, he was much emaciated and debilitated. He was bled just before an expected paroxysm. Before a sufficient quantity could be drawn he fainted, and was weakened without any benefit by the operation.

Flatbush, New York, Sept. 14th, 1833.

ART. VIII. *Empyema cured by an Operation.* By J. PANCOAST, M. D.

THE term empyema at the present day is restricted in its application to the collection of *fluids* in the cavity of the chest—air, water, pus or blood. The most common perhaps of these, and that which is most fatal usually in its issue, and which the term empyema more properly implies, is an effusion of purulent fluid. This may take place into the pleural cavity from several sources, and to which, from their yielding nature, the lungs readily give place.

Abscesses of the mediastinum, vomicae of the lungs, or phlegmonous abscesses of the lungs or of the liver, may gradually, by perforating the tissues which separate them from the pleural cavity, discharge their contents into it, and which they seem particularly disposed to do from the tendency to a vacuum produced in the thorax during the act of inspiration. A subacute inflammation of the pleura, either commencing in a latent form in a system, in which the sympathies are so obtuse, as not to reveal it, in its early stages, either to the patient or his attendant, or an acute inflammation which ceasing to excite pain, and to disturb the action of the organs, instead of disappearing entirely, has subsided into the chronic form. The serous membrane of the thorax, seeming to perform the office of a mucous lining, and to discharge *gradatim*, a purulent fluid, as we observe in coryza, fluor albus, and gonorrhœa. In both instances the secretion, though exhausting to the economy, is never directly fatal. In the latter instances it is discharged from the body through the natural openings, and hence all its disadvantageous consequences are comprised in its formation. In the former they there only commence. The retention of the fluid is the greater evil, and which, par ex-

cellence, when occurring in the cavity of the chest, constitutes *empyema*. The bulk of the fluid, besides the tendency to produce distress on account of its gravity, and to produce hectic symptoms by its absorption, displaces the heart and the lungs, and thus embarrass the two most vital functions of circulation and respiration.

In such cases the event must necessarily be fatal, unless the physician not only obtains the discharge of the offending fluid, but takes such measures as shall prevent its excessive reaccumulation.

In contemplating the chances of recovery from this disease, every thing will appear to depend upon the origin of the inflammation which gives rise to the secretion—whether it is an idiopathic affection of the pleura, the consequence of pleurisy or peripneumony, or whether it is secondarily induced by a neighbouring disease in the lungs or liver. In the latter case, the patient's situation is consequently more hopeless, as the primitive affection of these organs are too often of a kind that neither art or nature is able to combat against with success. The former cases, that is, those in which the pleura is principally the seat of disease, hold out the greatest inducements for the physician's exertion. In common pleurisy there is always, in the course of the disease, a greater or less amount of serum secreted in the cavity, and which is clearly distinguishable by any one accustomed to the use of the stethoscope by the characteristic sound of *ægophony* to which it gives rise. This secretion is usually removed by absorption during the recovery of the patient, leaving the thorax nearly as free as before. But in cases where the disease is but illy cured, or the patient is too soon reëxposed to the action of cold, a purulent secretion takes the place of the serous, and accumulates in one of the cavities of the chest to a very great extent. Such was the case with the patient whose history and cure I am about to relate below, and which may prove interesting to some of the readers of this journal, as I am not aware of the recent publication of any of a similar kind.

William Smith, aged twenty-two, a shoemaker by occupation, took a severe cold in the winter of 1828-9, which was attended with severe cough, painful respiration, pain in the left side, and all the ordinary symptoms of pleurisy. He was relieved by his physician of the most urgent of these symptoms, but still retained throughout that season, a continued uneasiness in his side, occasionally aggravated, when he was more exposed to the inclemencies of the weather. At this period he continued at his work, as is usual with shoemakers in a heated stove room, not complaining much, but feeling occasional faintness and shortness of breath, and walking, as his family observed, with his left shoulder so much depressed as to give him a lop-

sided appearance. The succeeding summer he spent among his friends in the country, alternately better and worse, unable to attend to business, and apparently suffering with pulmonary consumption.

The winter following, 1829-30, all the symptoms were aggravated; he was confined to the house and subjected to medical treatment, but without any amelioration of his sufferings.

About June, in the following summer, the dyspnoea and pain of the side were much aggravated. He grew unable to sustain even slight fatigue, and was obliged, after ascending a flight of stairs, to repose for some time on a bed. He was so little inclined to exertion, that the utmost importunities of his friends could scarcely, during the whole summer, persuade him out of sight of his own door. The hectic symptoms with which he had for some time been affected, were now fully confirmed. He had several flushes of fever during the day, and was usually bathed in a cold sweat at night. The soreness and pain of his side became concentrated in a spot, the size of a man's hand, between the tenth and eleventh ribs. Upon this spot, about the middle of July, he received a bruise, which was a little painful at the time, but soon overlooked. Shortly after this, an external tumour was developed, the size of a common saucer; this was poulticed under the direction of a physician, and burst suddenly in the month of August, discharging according to the account of the family, about half a gallon of greenish fetid pus, with filaments of coagulated lymph. Exhaustion and syncope followed, and for a day or two he was in a state of excessive debility. The pain and oppression previously felt, was however much relieved by the discharge.

I saw him for the first time in September; his side, which then presented three small openings, still continued to discharge drops of very fetid matter. The oppression and dyspnoea had returned to a worse degree than ever, and his appetite, which had previously been tolerably good, now failed him. He could only sleep when propped up in bed, and inclined upon the diseased side, and then but for a short space of time. Besides, hectic fever and sweats were fast dissipating the little strength he had left. He had a *ticking* sensation in his head, for which he had been directed by a physician a short time before to be bled, but which afforded no relief.

Upon examining the thorax, the ribs of the left side were found much sunken, measuring about an inch and a half less from the spine to the sternum, than those of the other side. The lower angle of the scapula was very prominent, the spine incurvated, the shoulder sunken, the heart palpitating in the right half of the thorax, where it

seemed to have been forced by some fluid in the left. The whole of the left half of the thorax, except a small part below the clavicle in front, sounded dull, and with the stethoscope no respiration could be heard on that side, except near the clavicle. The right lung upon auscultation appeared healthy, but more resonant than usual, in consequence of the increased duty it had to perform from the useless condition of the other lung.

The symptoms of the case, connected with the fact of the previous discharge of purulent matter, left no doubt of a large accumulation of some similar fluid. The patient was nearly exhausted by the length and obstinacy of the affection, and therefore to prolong his life even for a short time, it seemed necessary to resort to some means of removing the secretion.

Pus, when thus collected in the chest, unlike the serous effusions, is scarcely ever removed by absorption. The successive increase of the fluid reacts upon the membrane which forms it, and thus keeps up a perpetual irritation and a perpetual flow. If not withdrawn from the body, it compresses the lungs against the mediastinum, and destroys the patient by suffocation, or wears him out by the irritation.

Nature in some instances makes an effort for its discharge. An opening may be formed by ulceration through the pleura pulmonalis into one of the bronchia of the lung, and the matter be discharged by expectoration. In such cases, though relief for the moment is attained, the air in respiration makes its way into the cavity of the chest, becomes a new cause of irritation by its oxygen acting upon the pus, and in a short time the patient dies.

Another process of nature, and which is sometimes attended by success, is a tendency to point or form an opening externally through the parietes of the chest. This process has been imitated by the hand of art, making an incision through the walls and discharging the fluid. But the air is apt here to pass in at the external wound and take the place of the secretion, and thus keep up an irritation, which, in the course of a month or two usually destroys the patient.

DUPUYTREN has asserted, that out of more than fifty cases in which he had operated, he could quote but two instances of success; and Sir ASTLEY COOPER, that he had never observed one.

Dupuytren has subsequently pursued a different plan, and which has proved much more successful. An analogous course has also been pursued by Baron LARREY. Its merit consists in an evacuation of the fluid without the introduction of air. This is done by the skin being first drawn upwards, and a trochar then pushed into the cavity, the fluid evacuated, and the skin allowed to take its natural

position, and thus to close the opening. In this manner the operation is to be repeated at intervals of several days, as long as the fluid continued to accumulate.

In reflecting upon this case, it was evident that nature had done all that she could do towards the recovery of the patient, in giving the matter an external direction, and having caused a copious discharge. An operation now seemed required. It appeared to me, that even in the present emaciated and exhausted state of the patient, the chances of the patient's recovery was still probable, if the matter could be discharged without the introduction of air. The sinuses which had been left since the discharge in August, were found on probing to be very sinuous, and though they must have communicated with the internal abscess, a slow stillicidium of pus took place through them, and appeared to prevent the passage of air inwards. I therefore determined, in preference to Dupuytren's plan of repeated tapping to imitate nature by making a valvular incision into the cavity, and keeping it open by the frequent introduction of a catheter in an oblique direction. By this means I should be enabled to evacuate the fluid as it was secreted, and thus by preventing distention again, allow the diaphragm a better chance to ascend, the lung to expand, and the ribs to fall inwards, so as to diminish the cavity of the abscess.

On the 27th of September, with the assistance of my friend, Dr. CONDIE, I made an incision in the middle of the space between the tenth and eleventh ribs, down to the pleura, and through this, which was covered on its inner surface with a thick coat of false membrane, a female catheter was pushed. About two quarts of pus with some odour was discharged in jets synchronous with the pulsations of the heart. The wound was then carefully closed, covered with a large piece of adhesive plaster and a compress, and the whole surrounded with a roller bandage. The patient was directed an infusion of bark and snakeroot, and the use of weak wine whey. The laborious breathing and the extreme general anxiety was immediately relieved. No faintness occurred from the discharges. In the course of a day or two the appetite was improved, the hectic symptoms much diminished, and natural slumber returned; at first daily, and subsequently at intervals of two and three days, I introduced a female catheter from the bottom of the wound obliquely upwards, to discharge the secretion, which usually amounted to from two to three gills. On the fourth day after the operation the heart had nearly resumed its natural position, and I discovered by the stethoscope, that air penetrated into the lungs two or three inches below the clavicle. When the stethoscope was applied upon that side near the spine, the voice

of the patient when he spoke appeared to come with great force through the tube, indicating that there was still within a large unoccupied cavity.

December 4th.—Saw him again with Dr. CONDIE, every way improved; no night sweats; sleeps well; feels no pain; breathes easy. Introduced catheter again, and took away half a pint of bland serous pus. Heart regained its natural position. By the stethoscope, we discovered that air now passed down the left lung for four or five inches below the clavicle. When the stethoscope was placed close to the spine, any where opposite the thorax, a faint sound like the *tintement metallique* was occasionally heard. It was also heard at times two or three inches below the outer margin of the clavicle. This at one time gave rise to the opinion that there was a fistulous communication between the lungs and the cavity of the pleura. It was more probably owing to the plastic matter covering the pleura giving way during the partial expansion of the lung. Broncophony very strong below the clavicle; and during respiration there was occasionally heard a sound down the spine like the bleating of a goat, (*ægophony*.)

7th. The weather had suddenly changed, and the patient had been exposed to currents of air; countenance paler; spirits sunk; pulse small, palpitation of the heart heard more distinctly than before, all over the left chest. Respiration much less distinct in left lung than at last visit. Introduced a gum elastic catheter, as the canal had become too winding for the silver, and took away half a pint of fluid, same colour and consistence as before. Directed the patient to be placed in a warm stove room, to be more warmly clad, to have his chest well rubbed with a strong liniment, and to take his tonic medicine more freely.

10th. Patient much improved; rests better; but has had considerable night sweats; respiration could now be heard in the left lung, six inches below the clavicle, and down the whole length of the back; removed about half a pint of thin puruloid secretion. No pain on the introduction of the catheter. From this period he continued regularly to improve; the lung slowly expanding, and the quantity of secretion becoming less and less; care was taken to keep the orifice open, and a small catheter was introduced once a week, by twisting it through the winding canal, into the cavity of the chest. The amount taken away was usually about a gill. Whenever a cold change of weather ensued, or the patient was more than usually exposed, the quantity was increased. The following June he was exposed to a shower of rain, and suffered from an attack of catarrh, to which affection he had for some time seemed very much disposed. While this lasted, the discharge consisted of thick bland pus, about three gills of which were evacuated every four days.

Counter-irritation was continually kept up upon the chest. After the tartar emetic eruption had disappeared, blister plasters were applied alternately to the back and front of the chest. Tonic remedies were continued. The patient walked and rode every day when the weather would permit.

July 1st.—Examined him very attentively again with the stethoscope and pleximeter. Both indicated the presence of fluid at the bottom of the left pleural cavity. A mucous rhonchus was heard in the left chest like that of catarrh; and at the end of every inspiration, and sometimes in the middle, a sound like that of *ek*, pronounced in a strong inspiration. The left shoulder was considerably sunken; the spine was considerably curved with the convexity to the right side. The left side of the chest measured one and a half inch less than the right.

During the latter period of the treatment, when, from the development of the lung, rising of the diaphragm, and the reëducation of its proper position by the heart, the superficies of the abscess was much diminished, I tried the measure advised in such cases by Dr. CARTWRIGHT, of Natches, to avoid the trouble and pain, arising from the frequent partial introduction of the catheter to prevent the sinus closing its whole length. This measure, (see this Journal, Vol. VII. p. 413,) consists in the introduction of a bent wire into the cavity of the abscess, to act as a sort of syphon, by producing a discharge guttatim of the matter within. I found it difficult with it to exclude the air, it appeared also to irritate the lining membrane, and I was obliged to abandon it, and trust to the former mode which had proved successful.

From this period the patient continued to improve. In the autumn, a year after he came under my care, he was able to resume his occupation. The sero-purulent secretion however still continued to form for near a year longer, and the patient's mother was in the habit every week or ten days, of introducing a catheter, and evacuating it to the amount of three or four ounces. As the amount decreased considerably, the canal for the first time was allowed to heal throughout its whole extent, for the first time in August 1831. At the present time the patient is in the enjoyment of as good health, and nearly as able to undergo fatigue as at any previous portion of his life.

The gratifying results of the treatment of this case of empyema, a result so seldom met with when paracentesis thoracis is performed, appears due in part to the youth of the patient, and to the recuperative efforts which nature had already made, in effecting a discharge externally. But a great deal still appears to be owing to the valvular opening which was made, and kept open for so long a period, by

which we were enabled to keep the secretions from accumulating in the chest, and thus allowing the walls of the immense abscess to approach each other, and finally to obliterate the cavity. In the numberless introductions of the catheter, a single bubble or two of air was the most ever allowed to enter, and then at the moment of its withdrawal. I note this case in hopes that this process may be thought worthy of a trial, by some more experienced hand.

A case of abscess of the chest, of some interest, occurred a few years ago in the upper part of this state, in the practice of a medical friend, and was cured in a way somewhat *unique*, which would seem to make it worthy of recital.

A man was seized with some affection within the thoracic cavity, which resisted the prescriptive treatment of his physician. The stethoscope at that period had not come into general use, and the case was so ambiguous, that its character was not revealed by its symptoms. The patient and his friends entertained the opinion, that he was labouring under pulmonary consumption. No swelling, no discoloration, existed externally upon the thorax; but the patient, from the internal sensation produced by the disease, had a settled conviction that there was a *gathering* within. Taking a seat by an unfrequented side of the house, he plunged the blade of his penknife opposite the seat of pain between the ribs. He was found with pus flowing from the wound; a large quantity was discharged from the narrow wound. From that time his symptoms were relieved, and the patient finally recovered.

ART. IX. *On the Penetration of Gases.* By J. K. MITCHELL, M. D.
Professor of Chemistry, &c. in the Franklin Institute, and Lecturer
in the Medical Institute.

IN the November No. of this Journal for 1830, I published a paper, on the force and ratio of transmission of gases through membranes. The subject has since that period attracted much attention, both here and in Europe, and the experiments then made, have become the basis of reasoning on many morbid phenomena, and some physiological functions, particularly that of respiration. These considerations have led me again to review the experiments made at that time, and to make others, which seemed necessary to the full elucidation of the subject. This labour became the more necessary, since Mr. GRAHAM, of Glasgow, a chemist of growing reputation, has, in the course of an experimental investigation of the transmission of gases through stucco

plugs and other inorganic substances, confounded together two very different actions, and thus thrown some obscurity over the whole subject.

In 1829 I believe, Mr. Graham attempted to ascertain with accuracy the law by which the gases intermingle, or are diffused through one another. Mr. Dalton had previously shown, that when two gases of different specific gravities are placed in contact, so that the heavier gas shall be beneath the other, they notwithstanding, gradually commingle, even if a *long narrow tube* be the only connecting medium between their respective reservoirs. These and other facts led Mr. Dalton to conclude that each gas is repulsive only of itself, and that its interstices are a *vacuum* for the reception of any other gas whatever. The fallacy of that view of the subject might have been made out by the fact, that the commingled gases occupy as much space as when existing separately, and therefore cannot be supposed to enter the interspaces of each other as into a *vacuum*. The first *experiment* however, which demonstrated the error, was that recited in my first paper, showing that the force of ‘diffusion,’ as well as of ‘penetration,’ exceeded by an unknown quantity, the pressure of two atmospheres. Mr. Graham, by confining gases in vessels communicating with the air by narrow apertures, found that the ratio of diffusion varied inversely as the square root of the density. In a paper read before the Royal Society of Edinburgh on 19th of December, 1831, more than a year after the publication of my paper, Mr. Graham describes a series of experiments on ‘diffusion,’ made by the intervention not of artificial apertures, but of plugs of stucco in which the pores are minute enough to oppose a *slight* resistance to the mechanical escape of aerial fluids. By placing various gases in a glass vessel closed at one end by a stucco plug, and resting on mercury or water, and observing the time taken to escape, and the volume of reëntered atmospheric air, he formed the following table.

Table of Equivalent Diffusion Volumes of Gases, air being 1 or Unity.

		Specific Gravity.
Hydrogen - - - - -	3.83	0.694
Carbureted hydrogen - - - - -	1.344	0.555
Olefiant gas - - - - -	1.0191	0.972
Carbonic oxide - - - - -	1.0149	0.972
Nitrogen - - - - -	1.0143	0.972
Oxygen - - - - -	0.9487	0.111
Sulphureted hydrogen - - - - -	0.95	1.1805
Protoxide of nitrogen - - - - -	0.82	1.527
Carbonic acid - - - - -	0.812	1.527
Sulphurous acid - - - - -	0.68	2.222

Thus his former conjecture was confirmed, and he appears to have
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proved that 'diffusion' is inversely as the square root of density. As the pores of stucco, charcoal, paper, &c. are penetrated with great ease by the gases, the quantity constantly presented at the surfaces of the stucco is greater than the diffusive power is capable of conveying away, hence only the 'diffusion' can be thus exhibited, since the amount of 'penetration' is limited to the quantity removed by the air. The removal more rapidly by a current or a *vacuum*, greatly increases the amount effused, showing the much greater 'penetration.' Substantially in the former paper, I stated that when the 'penetration' exceeded the 'diffusibility,' only the latter could be measured, whereas, when the diffusion is greater than the penetration, it is the action of the barrier which is estimated. Overlooking this distinction, Mr. Graham has confounded together all kinds of penetrable barriers, and asserts that "dried bladder answers for showing the *diffusion* of hydrogen when stretched over the open end of the tube receiver; the diffusion however, through a single thickness of bladder is effected at least twenty times more slowly than through a thickness of one inch of stucco; while on the other hand, either air or hydrogen, under mechanical pressure passes more rapidly through bladder than through a great thickness of stucco. Goldbeaters' skin is even more permeable by gases under slight pressure than bladder, and less suitable for diffusion." pp. 240, 241. That Mr. Graham has fallen into unaccountable error in this particular, is demonstrable by the following simple experiment.

Over the end of a tube eight inches long was tied a piece of moistened bladder, which was subsequently dried. The tube was then filled with mercury, and placed erect on the mercurial pneumatic shelf, by the side of a similar and similarly treated tube closed with stucco. In less than three minutes the air had passed through the stucco, and followed the mercurial column down to the level of that in the trough. In the other, in *twelve hours*, enough of air had not entered through the bladder to disengage the mercury from its contact with it. It amounted to a small bubble floating about against the under surface of the bladder. To secure to the bladder complete contact with the glass, it must be tied on when wet, with a dry *waxed* string, and then left some hours to dry. Any tube thus treated will admit air by *mechanical* impulsion *many thousand* times more slowly than stucco of an inch in thickness. When it does otherwise it is unsound or imperfectly tied on. Whenever the hydrogen finds its way out by a passage between the glass and bladder, it diffuses more rapidly than carbonic acid, and only then.

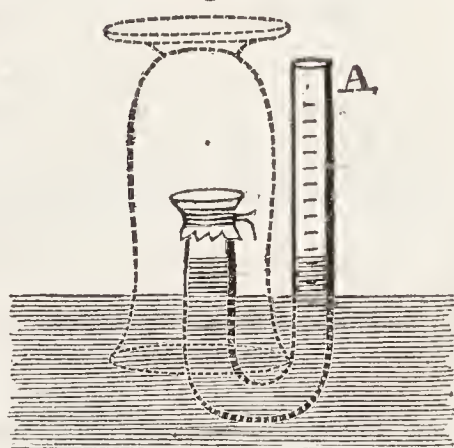
Another experiment made with a different object demonstrates the same fact. Three tubes each six inches in height and capable of

holding two cubic inches of air were closed with bladder at one end, and filled half-full of nitrogen, hydrogen and oxygen respectively, so that each tube being placed over water, held a column of that liquid nearly three inches high. Notwithstanding the pressure inwards, the tubes all of them fully supported the columns, and at the end of five days they all contained less air and more water than at the beginning. No stucco plug would support a three inch column of water for five minutes.

Notwithstanding these discrepancies, I thought it important to go again into an examination of the 'penetration' of gases, and to write on the subject a series of papers, of which this, the first, will contain little more than an experimental review of ground formerly, but hastily traversed. The great importance of the subject, seem to me to justify the repetition of the experiments which will be reported more in detail than the former ones.

The annexed wood cut represents the inverted syphon with which a great many of the following experiments were made. Enlarged at one end into a kind of funnel or inverted cone, $\frac{7}{10}$ ths of an inch in diameter, over which the membrane is tied, its other limb $\frac{2}{10}$ ths wide, is graduated into divisions of equal lengths, of the capacity of 0.003 of a cubic inch. Under the membrane were placed 0.075 of a cubic inch of atmospheric air, which was confined there by mercury having the same level in both limbs of the syphon. Thus prepared, the funnel of the syphon was pressed under mercury and brought up into a bell-glass, holding two and a half cubic inches of the gas to be tested. The rise of the column of mercury in the outer limb indicated the velocity of influx, and the quantity. In the first series of experiments exhibited in the following table, gum-elastic was used as the barrier. Its flexibility when dry, its refractory character, its feeble hygrometric power, well fit it for a standard of comparison.* The whole of the experiments arranged in the first table, were made with the same membrane, so that, making allowance for the effect of dust, mercury, and the irregular manner in which quicksilver moves in a narrow glass tube, the various results by the same gas are very uniform.

Fig. 1.



* In a very thin, transparent bag of gum-elastic were placed $\frac{3}{4}$ 4. 3ij. 57 grs. of water, which lost in weight per day as follows:—8 grs., 4 2-3, 6, 3 3-5, 4 $\frac{1}{4}$, 3 $\frac{1}{8}$, 3 $\frac{1}{2}$, 3 $\frac{1}{2}$, 2, 0, 2 $\frac{1}{3}$, 2, 2, 1 $\frac{3}{4}$, &c. The average loss for one hundred and twenty-nine days was 2.367 grains per day.

A section of bladder tied up in the form of a bag, and holding 4oz. 63. 2 grs. of water lost per day 259 grains, 117, 303, 621, when it became offensive.

TABLE I.

Of the Rate of Entrance of Various Gases through Gum-elastic into Atmospheric Air confined in the Inverted Siphon, Fig. 1.

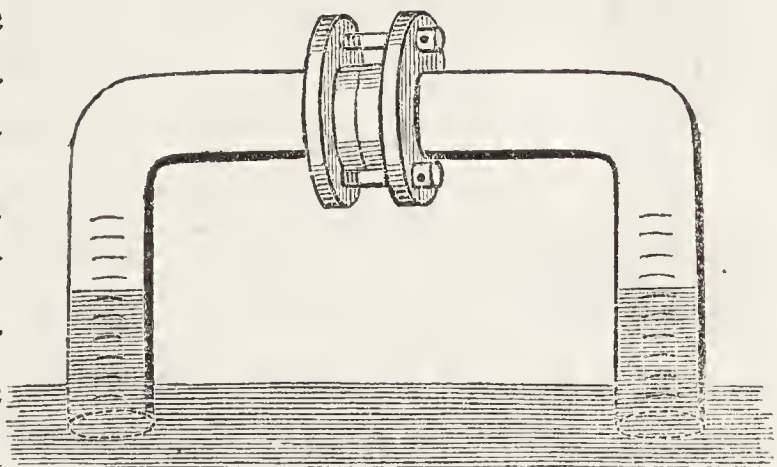
No. of spaces.	Sulphureted Hydrogen.		Cyano-gen.		Cyano-gen.		Cyano-gen.		Ammo-nia.		Ammo-nia.		Ammo-nia.		Carbo-nic acid.		Carbo-nic acid.		Hydro-gen.		Hydro-gen.		Oxygen of nitre.		Oxygen of chl. of pot.		Oxygen to nitrogen.	
	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.	Temperature.	Time required.
1	80 Deg. F.	1 Min. 47 Sec.	70 Deg.	1 Min. 45 Sec.	71 Deg.	2 Min. 45 Sec.	73 Deg.	1 Min. 35 Sec.	68 Deg.	2 Min. 15 Sec.	68 Deg.	2 Min. 45 Sec.	68 Deg.	1 Min. 35 Sec.	68 Deg.	6 Min. 15 Sec.	68 Deg.	5 Min. 45 Sec.	70 Deg.	25 Min. 15 Sec.	70 Deg.	25 Min. 15 Sec.	74 Deg.	32 Min. 45 Sec.	75 Deg.	42 Min. 44 Sec.	79 Deg.	40 Min. 45 Sec.
2		1 14 8		1 1 10		1 12 3		1 15 3		1 15 30		1 45 45		1 50 45		4 23 15		4 30 45		15 15 45		19 30 30		32 45 30		42 30 30		40 45 50
3		0 51 7				1 17 23		1 16 13		1 30 45		1 45 30		1 45 30		5 15 30		5 45 45		16 45 45		19 30 30		45 30 30				45 50 70
4		1 1 1				1 28 17		1 16 16		2 1 45		2 15 30		2 30 45		6 14 15		6 45 10		20 45 45		22 15 15		56 30 30				
5		1 26 5				1 48 28		1 30 22		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		22 30 30		25 15 15		93 30 30				
6		1 24 24				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		24 30 30		25 40 40		96 30 30				
7		1 20 20				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
8		1 41 41				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
9		1 20 20				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
10		1 44 44				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
11		1 51 51				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
12		1 55 55				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
13		1 50 50				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
14		1 33 33				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
15		1 24 24				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
16		1 16 16				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
17		2 2 2				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
18		2 2 2				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				
19		2 2 2				1 42 48		1 47 30		2 2 30		3 15 15		3 30 45		7 38 38		8 10 10		25 40 40		28 50 50		107 30 30				

The average rate of penetration is *inversely* as the following numbers.

Sulphureted hydrogen, 1; cyanogen, 1.166; ammonia, 1.75; carbonic acid, 4.50; hydrogen, 15; oxygen, 35; or taking the least number of each column, we have—sulphureted hydrogen, 0.85; cyanogen, 1; ammonia, 1.25; carbonic acid, 4.233; hydrogen, 14.75; oxygen, 32. As these numbers are also inversely representatives of the quantities of the gases admitted in equal times, it follows that nearly fifteen times as much cyanogen enters in a given time as of hydrogen, whereas according to Graham, hydrogen should enter in about four times the measure of cyanogen.

In the instrument, Fig. 2, some of the gases were compared, so as to verify the results of the first

Fig. 2.



table, the intervening membrane being also gum-elastic. The instrument consisted of two hollow cylinders of iron or brass with flanges and screws so that they might be forced into powerful contact. To accomplish this the better, the screws had perforated heads through which a lever could be passed. Between the shoulders of the cylinders, was placed the membrane, and by means of the screws and levers, the shoulders of the cylinders tightly compressed the membrane, so as to entirely cut off communication with the air at the point of contact. Into the cylinders were fixed by sealing wax curved glass limbs, of equal length and diameter, so that when put together the whole represented an inverted syphon open at each end, but separated into two compartments by the membrane at its middle point. By placing measured quantities of the gases to be compared, on opposite sides of the membrane, the experiment commenced under perfectly equal circumstances. The quantities were alike, they were on the same level at the membrane, and were subject to equal causes of tension. But few observations were thus made on gum-elastic, and these merely to verify the results presented by the funnel-syphon. Carbonic acid was found to be more penetrant than hydrogen, hydrogen than oxygen, and oxygen than nitrogen, made both by phosphorus and hydrogen. The exact degree was, for want of time, overlooked.

Another general verification was made in simple tubes standing erect over mercury or water, and covered with the same kind of membrane. In these cyanogen was more penetrant than carbonic acid, that than hydrogen, that than oxygen, and nitrogen scarcely ever

suffered any other change than that produced by alteration of temperature. In the next paper more exact results will be given.

Before proceeding to the action of gases on wet animal membranes and recent animal tissues, some observations were made on dry bladder. A tube Fig. 3 was filled to the top with mercury—after

Fig. 3. standing over the mercurial trough all night, a very small bubble of air was observed among the mercury yet in contact with the membrane. A similar tube closed with a plug of stucco an inch in depth suffered the air to enter so rapidly as to let the mercury fall to the level of that in the trough in a few minutes. Having ascertained in this manner the tightness of the membranous cover of three equal tubes, a cubic inch of hydrogen, oxygen and nitrogen respectively was placed in them. By transfer to water that liquid took the place of the mercury without wetting the membranes. After five days the hydrogen was less by 0.38 of a cubic inch, the oxygen by 0.08, and the nitrogen 0.015. Stating the rate of hydrogen as in the 1st table at 15. that of oxygen will be 3.158, and of nitrogen 0.58: or hydrogen penetrates nearly five times as rapidly as oxygen, and that nearly six times as rapidly as nitrogen, when dry bladder is used for the cover, and the gases stand over water.

A syphon, Fig. 2, contained in its limbs 125 parts of hydrogen and carbonic acid respectively. A perfectly dry bladder intervened, and was compressed by the shoulders of the iron as forcibly as possible. At the end of twenty-four hours, of the 125 parts of hydrogen 2 passed to the carbonic acid *through* the membrane, $51\frac{1}{2}$ by the space between the iron shoulder and bladder to the air, and by the same way there reëntered $30\frac{2}{3}$ ds of common air.

Of the 125 parts of carbonic acid 5 passed through to the hydrogen, $30\frac{1}{2}$ passed by the side of it to the air, and the reëntered air measured $25\frac{1}{2}$.

Penetration through dry bladder—hydrogen 2, carbonic acid 5, or 1 to 2.5.

Diffusion by the side of the membrane—hydrogen 51.5, air 30.666, or 1.68 to 1; carbonic acid 30.5, air 25.5, or 1.196 to 1.

Experiments on the penetration of gases through wet and recent animal tissues.

The syphon, Fig. 1, used for the experiments arranged in Table I. containing the same quantity of atmospheric air, was covered with bladder soaked in water until perfectly infiltrated, and then wiped dry on the surface. It then, by immersion in the following gases, gave the results stated in Table II.

TABLE II.

Rates of Penetration through wet Bladder in Syphon, Fig. 1.

Nos.	Ammonia.		Ammonia.		Cyanogen.		Cyanogen.		Carbonic acid.		Carbonic acid.		Hydrogen.		Hydrogen.	
	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Min.	Temp.	Min.
1	72°	8	72°	11	71°	49	69°	50	69°	224	71°	228	72°	38	70	37
2		12		10		66		62		214		194		30		34
3		11		9		55		48		193		192		31		31
4		8		8		46		44		158		193		37		
5		10		10		54		51		228		225				

Ratio—1 to 5.5—20.7—600.

TABLE III.

Rate of Penetration through the Crop just taken from a Chicken, and tied over the end of the Syphon, Fig. 1.

Nos.	Ammonia.		Ammonia.		Ammonia.		Cyanogen.		Cyanogen.		Carbonic acid.	
	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.	Temp.	Sec.
1	72°	8	71°	8	73°	8	71°	45	69°	55		156
2		10		10		6		43		46		139
3		14		14		5		41		36		95
4		18		18		5		27		28		115
5						8*		47		42		137

Ratio—1 to 4—12.3.

The piece of paper containing the account of the experiments on oxygen for Table II. and of oxygen and hydrogen for Table III. having been mislaid, I am able to recollect merely the general agreement exhibited by the other gases. Oxygen penetrated somewhat more slowly than hydrogen.

Experiments on the penetration of gases through wet and fresh animal tissues in the inverted syphon, Fig. 2.

1st. Over mercury 0.85 of a cubic inch of carbonic acid and oxygen from nitre were placed in the opposite limbs of syphon, Fig. 2, separated from each other by wet bladder. In twenty-five hours the carbonic acid was lessened to 0.355, which lost by washing 0.330, leaving behind 0.025 of oxygen. The contents of the other limb were

* Immediately after an experiment with any gas, a repetition with the same membrane and gas usually showed acceleration.

lost without admeasurement, but were greater than at the beginning of the experiment.

2d. Repeated. 1.10 parts of carbonic acid, 0.85 parts of oxygen, after twenty-one hours found the carbonic acid reduced to 0.63, which lost by washing 0.605, leaving 0.025 for the oxygen sent through.

The other limb contained 0.965, lost by washing 0.30; 0.30 of carbonic acid and .025 of oxygen went through the membrane, which held in its pores 0.195 carbonic acid and 0.155 oxygen. Or carbonic acid is ten times as penetrant as oxygen.

3d. Repeated. Carbonic acid 1.35, oxygen 0.85, after a lapse of nineteen hours and fifteen minutes the gas in the carbonic limb was 0.88, lessened by washing to 0.05; while the other limb contained 1.125, reduced by washing to 0.785—so that 0.34 of carbonic acid penetrated, and 0.18 were absorbed; while 0.05 oxygen penetrated, and 0.015 was absorbed; or carbonic acid is more than six times as penetrant as oxygen.*

4th. Repetition. Substituting *fresh* chicken crop for the wet bladder—1.35 of carbonic acid, and 0.85 of oxygen—time, twenty-seven hours and thirty minutes. The carbonic acid limb contained 0.35, which by washing was reduced to 0.05; the other limb held 1.55, reduced by washing to 0.80—so that 0.75 of carbonic acid and 0.05 of oxygen penetrated, while the membrane held 0.50 of acid, and none of the oxygen. According to this experiment, carbonic acid penetrates fifteen times as rapidly as oxygen.

In the same syphon, Fig. 2, by the intervention of wet bladder, hydrogen and cyanogen were compared. In these experiments equal quantities were used. The column of mercury rose in the limb containing cyanogen, and fell in that holding hydrogen, thus indicating the superior penetrancy of the heavier gas.

2d. Repeated. The hydrogen received twenty parts of cyanogen, and transmitted only one part.

3d. Repeated. Twenty-eight parts of cyanogen, and nearly one and a half of hydrogen permeated the wet bladder.

1st. Hydrogen and nitrogen compared over water by wet bladder. Time nine or ten days; instrument, Fig. 2; quantity 2.55 of each; temperature ranged between 69° and 78° Fahr. By HARE's eudiometer the hydrogen was shown to hold 0.289 of nitrogen, the nitrogen 0.50 hydrogen, hydrogen therefore penetrated 1.724, nitrogen 1.0.

* After observing the great amount of absorption by the wet membrane, I increased the proportional quantity of the more absorbable gas.

1st. Comparing oxygen and hydrogen in the same manner with intervention of fresh crop—after two days the greater penetrancy of hydrogen could be seen by the change of volume, which was not however very considerable.*

Experiments to ascertain the full result of penetrant action through wet bladder.

To effect this object, a syphon similar to that represented in Fig. 1, was so adjusted, that its outer limb at A being made short, it could *discharge* the mercury in proportion to the influx of gas at the other end, without *very materially* altering the pressure. The mercury discharged represented the quantity of aerial influx through the membrane, or rather the difference between the penetrant action of air and the gas. The wide end of the syphon contained 0.25 parts of a cubic inch of air, the bell-glass nearly a pint of gas. The first experiment was made with ammonia at the temperature of 69° Fah. After a lapse of between thirty minutes and an hour in all cases, the ammonia seemed to cease action, and the quantity of mercury thrown out, was in three different cases 1.025, 0.90, and 0.975 respectively.

Cyanogen. Under the same circumstances took at least eight hours to complete its action, and the quantity of mercury thrown out varied from 0.90 to 1.00.

Carbonic acid did not cease action for nearly three days, when it was found that 1.125 parts of mercury were discharged.

In a second experiment .555 parts were discharged in twenty-five hours; in the next twenty hours and fifteen minutes, 0.15; in the next twenty-four hours and ten minutes, 0.075; and in the nineteen hours and thirty minutes immediately preceding the cessation of action, 0.02. Total, with correction for temperature and pressure, 0.98, in about three and a half days.

Hydrogen under a similar arrangement discharged 0.045 in eleven hours and fifteen minutes; 0.025 in seven hours and fifteen minutes; 0.045 in sixteen hours; 0.07 in twenty-five hours and fifteen minutes. Total after correction, 0.205, in fifty-nine hours and forty-five minutes, at which time an accident put an end to the experiment, while it was yet in action. From the experiments immediately antecedent, it is probable that the amount would finally have reached about 0.95 to 1.00, or a cubic inch; or, as in the other cases, 0.25 of air would

* In the last two experiments nothing is certain but the greater penetrancy of hydrogen over either oxygen or nitrogen, for the motion in the limbs of the syphon showed that. In both, the bladder began to spoil at the end of the experiment.

minge with 1.00 of gas, the proportion being about 4 to 1, as in the mixture of nitrogen and oxygen in the atmosphere. The penetration of *air* through wet membranes is so slow, as to leave scarcely a trace of such action by analysis, even in the most protracted experiments. I have therefore made my calculations without introducing it.

From these experiments it appears that the rate of influx was very great or rapid for ammonia, much slower for cyanogen, still slower for carbonic acid, and very slow indeed for hydrogen. Ammonia completed in half an hour the penetration which required eight hours for cyanogen, three days for carbonic acid, and an unknown, but much longer time for hydrogen. The latter in two days and a half had done about one-fiftieth of the work executed by ammonia in half an hour. It is, however, to be observed, that the exact time for ammonia was not well observed, and it may have been misstated, but not to an extent exceeding half an hour.

In the attempt to discover the cause of the difference of velocity of the transmission of gases through porous bodies, I examined experimentally the passage of compressed aeriform fluids through visible apertures. Condensed to an equal degree in the same reservoir, air, hydrogen, and carbonic acid were successively allowed to escape through an aperture distinctly visible, and the times of the descent of the mercury of an air-guage noted in *seconds* as it passed over equal spaces, falling from nearly four atmospheres to the usual barometric level.

Hydrogen—11, 10, 7, 6, 7, 5, 5, 5, 5, 4, 5, $3\frac{1}{2}$, 4, 5, 6, 8, 22.

Carbonic acid—36, 33, 25, 24, 21, 17, 18, 16, 13, 14, 14, 12, 14, 14, 16, 22, 29.

Ratio on the whole, 1 to 3.163.

Through a smaller aperture just visible the times of escape were in seconds.

Hydrogen—19, 16, $15\frac{1}{2}$, 14, $14\frac{1}{2}$, 12, $12\frac{1}{2}$, $10\frac{1}{2}$, $14\frac{1}{2}$, 14, 17, 27.

Carbonic acid—51, 45, 47, 41, 36, 34, $35\frac{1}{2}$, $31\frac{1}{2}$, 38, 37, $42\frac{1}{2}$, $61\frac{1}{2}$.

Common air—43, 40, 40, 35, 32, 31, 31, 26, 33, 32, 38, 55.

Ratio—1 to 2.688—2.344.

A repetition gave very similar results. The air escaped more rapidly than carbonic acid.

A stucco plug a quarter of an inch in length was next used under like circumstances, care being taken not to compress it. The results were in seconds.

Hydrogen—74, 76, 78, 79, 80, 85, 90, 93, 98.

Carbonic acid—158, 155, 151, 159, 149, 174, 181, 180, 203.

Common air—173, 163, 169, 172, 167, 188, 200, 198, 215.

Ratio—1 to 2.005—2.18. The air penetrates with less facility than carbonic acid.

Through a *compressed* stucco plug rather more than an inch in length the times of escape were in minutes, as follows:—

1st. Hydrogen— $12\frac{1}{8}$, 11, $13\frac{1}{8}$, $14\frac{1}{2}$, $13\frac{1}{2}$, $15\frac{1}{4}$, 18, $18\frac{1}{4}$.

2d. do. $10\frac{1}{2}$, 11, $12\frac{1}{2}$, $13\frac{2}{3}$, $12\frac{2}{3}$, $13\frac{1}{3}$.

1st. Carbonic acid—17, $18\frac{1}{3}$, $21\frac{1}{3}$, $22\frac{1}{2}$, 22, $25\frac{1}{2}$, 29, $29\frac{2}{3}$.

2d. do. 17, $18\frac{1}{3}$, $20\frac{1}{4}$, $20\frac{3}{4}$.

1st. Common air— $20\frac{3}{8}$, 21, $23\frac{1}{2}$, 25, $24\frac{1}{4}$, $27\frac{1}{4}$.

2d. do. $19\frac{1}{4}$, 20.

Ratio—1 to 1.626—1.727. The air penetrates with less facility than carbonic acid.

Recapitulation.

	Hydrogen.	Carbonic acid.	Air.
Ratio of times—visible hole	1 - -	3.163 - -	
Lesser aperture - -	1 - -	2.688 - -	2.344
Thin plug of stucco - -	1 - -	2.005 - -	2.18
Thick dense plug - -	1 - -	1.626 - -	1.727

It seems, if these experiments can be trusted without frequent repetition, that the larger the orifice the more nearly the proportional quantities of gases given out in a certain time approach to Graham's law of diffusion; and that the more minute the apertures the less the proportional facility of the escape of the lighter gas. Thus, air passes through a visible aperture faster than carbonic acid, but not so fast through the pores of stucco—while the proportional rapidity of the escape of hydrogen is greatest through the widest aperture, and though greater in the smallest, yet progressively lessened. It passes through a large opening 3.163 times as fast as carbonic acid—through a smaller one 2.688 times as fast—through a thin plug 2.005 times as fast, and through a thick one only 1.626 times as fast. By still more minute channels it is possible that these two gases may pass with about equal facility, and pores may exist so minute as to reverse the order of penetration, as is demonstrated with respect to carbonic acid and common air in these very experiments.* The experiments to bear on this question are yet in progress, but those which exhibit the transmission through gum-elastic, wet bladder, and recent animal membrane, demonstrate, if not the cause, at least the fact of a reversal of the order of penetration; for through such in all instances the heavier gas penetrates much the more rapidly. If the size of orifice determine the penetration, philosophy may yet, by experimental investigation of

* See page 106, where carbonic acid diffused to hydrogen by the side of a membrane, as 1 to 1.404.

the effects of apertures of visible but varied size, learn the law of alteration, and thus finally, by observing the penetration through invisible pores, calculate their size, even determine the volume of the penetrant atoms, and detect many mysteries of physiology and pathology, by a process which at first seemed to promise no contribution to the stores of useful science.

Other and indispensable engagements forbid my entering at present on a record of the many very interesting suggestions forced on us by the facts which have been here recorded. But they will have more weight when they follow the whole series, which I hope to lay soon before the readers of this Journal. For the imperfection of very many of my experiments I must be indulged, since the calls of an arduous and imperative profession often interrupted, and sometimes destroyed the most promising phenomena. To present them as they are, it was necessary to work during the night, and sometimes all night, a period not very favourable to nice observation and delicate manipulation. But though imperfectly, they are honestly made, and to avoid obscurity the prolix details have been stated at length, and the reader has thus the opportunity of judging of the correctness of both deductions and calculations. By reference to my former paper it will be perceived that the ratio of penetration of some of the gases as there stated is erroneous, although not to an extent subversive of the great general truths there set forth. Cyanogen, ammonia and sulphureted hydrogen are less unequally penetrant than I had supposed, and the extraordinary alteration of rate occasioned by imbuing a dry membrane with water, was not then clearly enough expressed. The relation of oxygen and carbonic acid to each other, being that which is to the physiologist much the most interesting and important, has been studied in a greater number and variety of experiments, and so far as they are connected with the subject, it has been fully elucidated. For the rest, much remains to be done; and after I have examined in detail the relations of a similar kind between liquids, and the relation of both kinds of fluids to the blood, it is not improbable that new light will be shed on the dark subject of respiration.

Enough has now been done to show that the law of diffusion through stucco, established so well by Mr. Graham's very philosophical labours and reasoning, does not apply to substances of a closer texture, and that physiology must depend on the experiments on animal membranes themselves, for the elucidation of the many important difficulties in the way of a satisfactory explanation of the functions connected with aeriform fluids.

ART. X. *A Case of Ununited Parturient Laceration of the Recto-Vaginal Septum, successfully treated with Metallic Ligatures.* By JOHN P. METTAUER, M. D. of Prince Edward County, Virginia.

THE lady whose case forms the subject of the following communication, was about thirty years of age when the accident occurred. Her health and constitution as far as I could learn, had been good down to the time of her confinement, which took place some time during the month of October, 1831. The pregnancy which resulted in the laceration was her first, and from its history must have been more fortunate than usually follows late conceptions. Her labour was protracted and very tedious, having continued more than three days, but was marked by no other important event, save the accident. Six months after the laceration took place I was consulted, and my opinion and advice requested. The history furnished at this time, induced me to regard it a case of ununited laceration, and I feared that the surfaces had healed, so far at least, as to require denudations by art, before a reünion was likely to take place between them. An opinion to this effect was expressed to the husband of the lady, (an intelligent and highly respectable gentleman, of a neighbouring county;) I also informed him, that it was more than probable ligatures would be required before a complete cure could be effected. Some five or six weeks after this interview, the lady was conveyed to my neighbourhood, and placed under my immediate management; having resolved to waive all considerations of delicacy, (a sacrifice indeed,) if she could only obtain partial relief from her most loathsome and health-destroying infirmity.

In assuming the weighty responsibility of such a case, I am free to own, that I felt much embarrassment, the more so, as I was called upon to act in a matter of great delicacy, to say nothing of its intrinsic difficulties, without having had time to avail myself of the advice of some of my experienced brethren, or to think much upon the subject. The anxiety and determined purpose of my patient, did not permit me long to doubt and fear, and without further delay I was summoned to examine into the nature of the infirmity.

The examination disclosed a complete disunion of the recto-vaginal wall, from the verge of the anus, three inches up the rectum, and as was feared, the divided surfaces had healed in every part of them. The cleft terminated superiorly in an angle somewhat obtuse, and the rectum had contracted upon itself, so as to render its several teguments a mere band of the width of $\frac{5}{8}$ ths of an inch. On each margin

of this band, a whitish line was to be perceived, commencing in the angle above, and continuing down to the verge. These were doubtless cicatrices, and pointed out the margin of the divided rectum. The retaining faculty of the sphincter was completely destroyed, and the unfortunate lady from that cause had been compelled to submit to constant confinement, in a recumbent posture, to prevent the loathsome accident of involuntary dejections. Long-continued irritation of the wound had induced in the gastro-intestinal organs a morbid susceptibility which subjected the lady to frequent attacks of colic and diarrhoea from the slightest errors in diet. To remedy so afflictive an infirmity, it was necessary, not only to repair the breach of the rectum, but also to restore the tubular form of the rectum, and contractile power of its sphincter muscle. These ends were accomplished in the following manner. The patient was placed very nearly as in the position for lithotomy, with the knees held apart, and exposed to the direct light of a window, the cleft was readily brought into view, by separating the vulvæ and anterior parietes of the vagina. Denudations three-fourths of an inch in width, extending from the angle down to the verge on each side, were now effected along the cicatricial lines, and a little exterior to them, by the aid of hooks, scissors curved on their flat sides, and scalpels, using them according to circumstances. As soon as the wounded surfaces ceased to bleed, they were approximated, and for this purpose leaden ligatures were employed. These were introduced from within, and in succession, from the angle down to the verge, at the distance of one-fourth of an inch apart, care was taken to give them good hold; they were made to include at the same time a belt of undenuded substance on each side. Needles very much curved were employed, with a noose of twisted and waxed silk in the eye of each, upon which to hang the loops of the metallic ligature, previously formed. Dr. PHYSICK's forceps were used for the introduction of the needles, which were found a very handy and convenient instrument. As the ligatures were applied they were tightened, so as to bring the abraded surfaces in contact, and then their ends were twisted together and cut off of convenient length. About twelve ligatures were required to close the breach. From time to time the ligatures were tightened by twisting them, and the vaginal margins of the laceration cauterized with nit. argent. to favour the formation of granulations, which it was judged would greatly strengthen the union in this part. The patient was confined to the recumbent posture in bed, with the knees tied together, to prevent as far as possible any disturbance of the wound. A diet of liquids was directed, as least likely

to distend the lower bowels, or to elicit alvine evacuations. For four days the bowels reposed, and as a proof that the ligatures held the surfaces securely and perfectly in contact, the evacuation which now took place did not derange the parts or inflict much pain; and it was now for the first time since the accident occurred, that the propensity to deject could be resisted. In six weeks the ligatures were cut away, the parts having united perfectly. Leaden ligatures were preferred in the management of the foregoing case, as experience had proven them, not only less irritating and liable to cut out when tightly drawn than any other material with which I am acquainted, but infinitely more convenient and effective in maintaining a uniform and perfect apposition by the ready facility of simply twisting them, and a proof that the leaden ligature may act forcibly for a long time without cutting out, when they were removed in the present instance, it could not be perceived that any material encroachment had been made upon the margins of the cleft. The lady is now perfectly restored, thirteen months since the operation was performed, as the following extract from the husband's letter to me will evince:— * * *

“and can now with pleasure and most grateful acknowledgments to your skill and management have it to say that she feels no inconvenience from the injury sustained at the time she had her child; and she further says that if her condition was similar to the one she was placed in before you operated, she would freely and willingly submit to it again, if she could only believe the same degree of benefit and relief were to be the result.”

REVIEWS.

ART. XI. *Clinical Illustrations of the more important Diseases of Bengal, with the result of an Inquiry into their Pathology and Treatment.* By WILLIAM TWINING, Member of the Royal College of Surgeons of London; First Assistant Surgeon, General Hospital, Calcutta.—‘*Nihilque uspiam nisi quod probe exploratum habeam.*’—SYDENHAM. Calcutta, 1832. 8vo. pp. 705.

THE physicians in the service of the British East India Company deserve great praise for their industry and zeal in the promotion of medical science. Notwithstanding the active duties by which the greater part of their time is necessarily engrossed, they nevertheless find sufficient opportunities to record minutely the result of their clinical observations, and to present them to the public in a form well calculated to extend to the profession at large the benefit of their individual experience. To these observations we are indebted, in fact, for the most valuable of our information in relation to the diseases of tropical climates.

To a large portion of the profession in this country, the writings of the East India physicians have a peculiar interest; the diseases which prevail extensively in many portions of the United States bearing a close resemblance in their characters to those of India, and requiring for their removal an equally prompt and active treatment.

In the work before us, published at Calcutta during the past year, we have a series of highly interesting observations on the more important diseases of Bengal; namely, dysentery, affections of the liver and of the spleen, cholera and fevers. The author has endeavoured to add to our knowledge of the pathology and proper treatment of these by a diligent study of the phenomena attendant on their origin, progress and termination, with the strictest attention to the effects of the several remedies employed, and, in fatal cases, by a careful post mortem examination of the ulterior changes produced by the disease.* One hundred and forty-seven cases, including all the diseases just enumerated, are minutely detailed; and it is upon the facts derived from the history of these cases that the pathological and therapeutical deductions of Mr. Twining are chiefly founded.

* Preface, p. v.

We have given to the work a very careful perusal, and although we confess this was rendered somewhat irksome by the loose style of the author, and the novel system of punctuation which he has adopted, yet we were amply compensated for our labour by the judicious remarks it contains in reference to the pathological character of the several maladies of which it treats, and to the remedies best adapted for their removal. Mr. Twining is evidently a close and accurate observer of facts, and a bold, but at the same time extremely judicious practitioner. He is seldom led astray by the theoretical notions of preceding writers, however eminent, but has derived his opinions mainly from his own diligent investigations of the phenomena of disease, for the prosecution of which his opportunities appear to have been the most ample.

“In those instances,” remarks the author, “where the treatment advised in this work is different from that ordered by authors on the diseases of tropical climates, I have proceeded with great caution, and on grounds of the most ample evidence, afforded by my own practice; for the support of which, I have relied on proofs of its utility rather than on theory, and I am happy to find those proofs substantiated by the testimony of my professional brethren in this country.”

It is true that so far as regards the observations of our author upon dysentery, diseases of the liver, and fevers, we have found but little that is really new. In relation to these affections, the pathological views he advances are perfectly familiar to most American physicians, while his plans of treatment are, generally speaking, the same as have been found by them to be the most successful. The work is not, on this account, however, the less interesting. The views of Mr. T. on the diseases of the spleen and on jaundice are, we confess, in many respects entirely novel and highly important. But we are persuaded that in regard to cholera, some of his opinions will not be found to correspond with the experience and investigations, nor will his practice in all its details receive the sanction of the majority of those physicians who have had an opportunity of studying the disease.

Although we cannot praise Mr. T. as an elegant or even correct writer, yet we feel great pleasure in giving to him full credit for the perfect candour with which his observations are reported, and the entire absence of any thing like undue pretension, which marks every page of his work.

The first disease of which the author treats is *Dysentery*. This is a very common disease in Bengal, and one much more rapid and fatal than that which is known by the same name in Europe. It oc-

curs at all seasons of the year, but is most frequent and severe during the rains and at the commencement of the cold season—that is, from the beginning of June to the end of December. In regard to the nature of its remote and exciting causes, Mr. T. agrees with nearly all the late writers on the disease.

“The most remarkable circumstances connected with the dysentery of Bengal, are the extensive local inflammation of the mucous membrane of the great intestines, coëval with the commencement of the disease, the early existence of ulceration, and in many cases a tendency to sloughing of that membrane, while the degree of pyrexia and other constitutional symptoms are, for the most part, incommensurate with the existing local affection; the general disorder being apparently infinitely less than is often observed, attending a much slighter degree of local disease in other climates.”

Our author describes three varieties of the disease depending upon different stages of inflammation, ulceration or sloughing, of the mucous membrane of the large intestines.

The first, which is the most common form of the disease in Bengal, differs from the ordinary dysentery of this country only in the greater violence of its symptoms and its more rapid progress. In severe cases of only a few days duration, masses of sloughing membrane are occasionally voided.

The second variety comes on suddenly; the most violent symptoms occurring within the first thirty-six hours and unpreceded by any evident disease. Pure blood is poured out from the bowels at an early period, attended with little distress, excepting the disturbance from frequent calls to stool. In three or four days the stools have a horrid odour of putrid blood—this with a weak, rapid pulse, and hiccup, are almost always signs of a fatal termination. There is often little or no fever, the tongue is comparatively clean, the pulse frequently soft, the skin cool and perspiring freely, and pressure on the abdomen gives little uneasiness until we examine with care over the cœcum, when pain is almost always excited. These cases the author has found often to depend on numerous distinct circular ulcers in the colon, with elevated, thick, and abrupt edges, which are in a sloughing state, while the muscular fibres of the intestine appear at the bottom of the ulcer as if dissected clean.

The third variety is marked by an incessant desire to evacuate the intestines from the very onset of the disease, attended with urgent straining while at stool; the discharges consisting only of a little bloody mucus without any appearance of feces. The pulse is rapid and often small and hard. An uneasy sensation above the pubis, pain in the bladder and suppression of urine, frequently attend the

worst cases, in consequence of the inflammation extending to the lower portion of the intestine contiguous with the fundus of the bladder. Anxiety and restlessness increase early, and the latter stages of the disease are attended with more fever than is common in the preceding cases. The patient generally dies miserably emaciated between the eighth and twelfth days. Towards the close of protracted cases, the tongue becomes often covered with a brown mucus, or is dry, and the teeth are loaded with sordes; delirium and low fever existing at the same time.

The following are enumerated as the ordinary appearances detected upon dissection, in the bodies of those who die of dysentery.

Inflammation, ulceration, sloughing or mortification of the inner coats of the large intestines.

Morbid vascularity of the mesocolon, mesentery and omentum. Adhesions of the omentum to the adjacent parts, and of contiguous portions of the intestines to each other. The latter usually happen only when ulcers of the intestines have perforated through nearly all the coats.

The glands of the mesocolon and mesentery often enlarged, sometimes inflamed, and more rarely suppurating; the corresponding portion of the intestines usually containing a deep and large ulcer. The omentum occasionally adheres to these diseased glands, forming a band that may strangulate a portion of intestine and cause death.

The ulcerations of the great intestines are generally most numerous and extensive in the cœcum and upper portion of the colon. The ileo-cœcal valve has in some cases been found entirely destroyed by ulceration, the lower end of the ilium forming an intussusception into the cœcum, and becoming there strangulated has caused death. In a few more fortunate instances the strangulated portion of the ilium sloughs off, after adhesion has taken place between the adjacent parts, so as to maintain the continuity of the canal, and the patient slowly recovers.

The right portion of the omentum is frequently found adhering to the cœcum, and this morbid attachment gives rise to symptoms which may be mistaken for hepatic abscess.

In a few instances the coats of the colon are so much thickened, that when a transverse section is made, its canal stands open like a thick leathern tube, the interior of the intestine being covered with numerous large ragged ulcers, in the intervals of which the mucous membrane is partly destroyed and hanging in shreds.

“In several of these cases,” remarks Mr. T. “I have observed the cœcum and lower portion of *the* ascending colon, nearly covered with a thick layer

of coagulable lymph, deposited beneath the peritoneal coat of the intestine, and beneath the gut, extending a considerable distance along the iliacus muscle; in some instances, an unusual quantity of fat has been found at the same part, mixed with this inflammatory exudation. In other cases, when the disease has been more protracted, the whole of the great intestines are contracted in diameter, resembling a cord, and numerous small superficial ulcers are observed on their interior. In several of these cases, the internal surface of the cæcum, and four or five inches of the colon, are of a fleshy appearance, and of a livid red colour, inclining to brown, as if from a growth of granulations. I have met with but few cases of this sort, and when this condition of the cæcum has existed, a smaller space of the sigmoid flexure of the colon has exhibited a similar appearance. The patients have been much emaciated, with flat retracted belly and dry skin, the tongue of a slate colour, glossy and morbidly clean, as if skinned; the stools an opaque dirty-brown water."

Sometimes in the whole course of the colon we find not more than eight or ten large deep ulcerations, with sloughing, thick, abrupt, raised edges, surrounded by an extensive thickened base, into which sinuses and undermining cavities are seen to penetrate. These appearances have reminded our author of the foul ulceration at the centre of a small carbuncle. He has seen several patients die with not more than six or eight of these spots of disease in the colon. They had flushed face, restlessness and continued symptoms of fever, which were not easily subdued by remedies.

The last three or four inches of the ilium are generally affected with superficial ulcerations and roughness. With this exception we rarely find any disease of the small intestines in the bodies of those who die of dysentery. In those cases, however, where dysenteric symptoms occur towards the termination of protracted fevers, after death ulceration of the small intestines frequently exists, and may be deemed one cause of the tardy and imperfect convalescence from fever.

When the patient has died after protracted suffering from dysentery, we often find the cellular structure at the root of the mesentery and mesocolon, and across the bodies of the lower lumbar vertebræ, deprived of its usual elasticity and pliability, and to a certain degree indurated; and in many cases quite void of fat. This change Mr. T. conceives to be the result of a previous inflammatory condition of the parts—an interstitial exudation of coagulable lymph having taken place in the course of the disease.

Mr. T. cannot agree with those physicians who consider dysentery as very generally dependent, especially in tropical climates, on an affection of the liver, or a vitiated condition of the biliary secretion.

"If," he remarks, "dysentery be ascribable to a disordered state of the

bile, I would ask, how does it happen that the great intestines are the parts principally diseased in dysentery; while the small intestines are very seldom affected, although the bile has to pass along the course of the small intestines before reaching the cæcum and colon? I would also ask, if the black and discoloured stools depend on disordered bile, how it happens that the contents of the small intestines are almost always of different shades of yellow or orange colour; while in these same subjects we almost always find the feces immediately on passing into the great intestine, become of a dark gray, dark brown, or black colour? There must be something besides bile to produce this. I would further ask, what evidence have we that the dark colour of the fecal evacuations, is always dependent on the presence of disordered bile? Until some proof is afforded on this point, we may reasonably hesitate to ascribe the occurrence of dark-coloured or black stools, in this climate, invariably to disordered secretions from the liver: we should be less apt to speak constantly of the black cystic bile, when the evacuations are of a very dark colour, and we should be less inclined to suppose, that calomel is indispensable in all these cases."

We fully concur with our author in the belief that if a series of careful observations were undertaken in relation to the several queries contained in the preceding paragraph, we should be led to very different views to those which are now generally entertained in relation to the dark-coloured tenaceous discharges so frequently observed in the course of those diseases in which the alimentary canal is principally affected. We believe that in numerous instances it will be found that they are entirely unconnected with a vitiated state of the biliary secretion, and that the common plan of administering calomel in all cases in which they occur, is, to say the least of it, injudicious.

It is admitted by Mr. T. that dysentery and hepatic disease do occasionally coëxist. The advanced stages of abscess of the liver he has found almost invariably accompanied by dysentery. The usual causes of dysentery; sudden alternations of temperature combined with a humid atmosphere, may, also, at the same time that they give rise to an inflammation of the intestines, produce in certain individuals, hepatic congestion and irritation; while in other cases the inflammation of the bowels may be transmitted to the liver.

In these latter cases symptoms of hepatic disease are not evident, until the dysentery has existed many days, frequently not until the latter is decidedly on the decline—even after there has been an apparent convalescence for a day or two.

"At a very early stage of these affections," Mr. T. observes, "when the hepatic disease is seated in the right lobe; the right rectus abdominis muscle is more tense than the left, and it resists pressure by an involuntary resiliency."

This morbid tension of the right rectus abdominis, it may be remarked, the author considers to be in all cases one of the early

symptoms attending that form of hepatic disease which is liable to terminate in central abscess of the right lobe of the liver.

Mr. T. is of opinion that the affection of the liver occurring towards the terminating of dysentery arises from the abrupt cessation of the copious secretions from the mucous membrane of the intestines, while some degree of the inflammatory condition of the membrane is unsubdued; the decrease in the discharge from the bowels giving rise “to relative plethora of the mesenteric vessels, and consequent hepatic congestion and irritation.” That the irritation in these cases is transmitted from the intestines to the liver, we may admit—and probably it is very frequently caused by neglect or improper management after the more violent symptoms of the bowel affection have been removed. The explanation of our author, however, appears to us to be altogether untenable.

In the treatment of the acute dysentery of Bengal, the earliest attention and most constant care of the physicians, Mr. T. remarks, must be directed to subdue the local inflammation upon which the disease depends. He urges, therefore, the prompt, free and repeated use of the lancet, with the application at the same time of leeches over that part of the abdomen where pressure causes the most pain. In the majority of cases it will be proper, we are told, to continue this system of active depletion, so long as fever exists, or pressure on the abdomen gives pain, or there is any blood in the stools.

About two hours after the first leeches are removed a tepid bath is directed, which is to be repeated daily during the continuance of the disease. Many cases, the author remarks, if treated at the commencement by these remedies, will be readily cured by them alone.

When we consider that the disease depends upon an acute inflammation of the mucous membrane of the great intestines proceeding ~~on~~ more or less rapidly, to ulceration or to gangrene, there can be little doubt as to the propriety of the above remedies. We know from experience, that upon their early and judicious use, in all severe cases, the safety of the patient will mainly depend. Even in the mildest cases, the application of leeches to the abdomen can rarely, with propriety, be dispensed with.

Immediately after the first bleeding, Mr. T. administers a dose of castor oil, and when it has operated freely, a combination of six grains of ipecacuanha, four of extract of gentian, and five of the blue mass, in three pills, which dose is repeated every night and morning; while in the middle of the forenoon he directs daily forty grains of cream of tartar with twenty of jalap. The latter prescription he supposes to act principally on the small intestines, and by the copious fluid eva-

evacuations which it induces to remove the congestion of the mesenteric vessels, diverting, in this manner, the morbid vascular turgescence from the colon and mesocolon. It also effectually evacuates the great intestines. Its remote effects he conceives to depend partly on its diuretic properties, and partly on its increasing the activity of the absorbents and enabling them to remove the interstitial deposit usually attendant upon severe acute inflammation.

After a few days, Mr. T. sometimes omits the compound powder of jalap, and directs early in the morning a drachm of sulphur mixed with half an ounce of mucilage and one of cinnamon water. He is of opinion that in chronic cases, the sulphur promotes the healing of the ulcers in the intestines by its actual contact with them. Not only in the acute stages of dysentery is this active purgation recommended by the author, but subsequently, he directs every second night, at bed-time, six grains of the blue mass, with the same quantity of compound extract of colocynth, to be followed in the morning by one ounce of infusion of senna, the same quantity of infusion of quassia, and two drachms of Epsom salts. These remedies he continues for a fortnight after convalescence is established, and this with the view of removing the interstitial deposit of coagulable lymph or of serous fluids produced by the inflammation, especially in cases that have gone on to ulceration.

We confess that we cannot understand the rationale of this profuse administration of purgatives in the treatment of dysentery. Urging an inflamed bowel to increased activity appears to us to be rather a strange mode of removing the inflammation, while we cannot perceive a single indication to fulfil which the employment of purgatives is demanded. We are aware that they are recommended by the most eminent writers upon the disease, some of whom even advise its cure to be trusted to them alone. That they increase, however, in most cases the irritation of the bowels, and augment considerably the sufferings of the patient, we know from experience; in consequence, we have for many years almost entirely omitted their use, and have found much reason to be pleased with this change of treatment. In cases where ulceration of the intestines is suspected to exist, we hold purgatives to be altogether inadmissible. Mr. T. admits, that in all the stages of dysentery great caution is demanded in the administration of saline purgatives, the mildest of them being apt to irritate by carrying off the natural mucus of the intestines. We maintain that more or less irritation will be produced by the action of all purgatives.

The author is opposed to the use of large doses of calomel in the

treatment of dysentery. He seldom employs it even in small doses, and never to the extent of producing salivation. It will be easy to show, he remarks, that calomel is often not only useless, but that in many cases of the dysentery of Bengal, it is exceedingly injurious. This opinion is founded upon his own experience, having tried the medicine extensively in every form of the disease. There is one form of dysentery, however, in which, after active depletion by the lancet, he has several times seen the most remarkable and immediate good effects from scruple doses of calomel and ipecacuanha combined, followed at the end of four hours by a drachm of the compound powder of jalap. This occurs in robust subjects, with considerable pyrexia when the patient has not been more than three or four days ill. It is attended with frequent calls to stool, all that is voided each time being only about half an ounce of reddish mucus.

Of the efficacy of ipecacuanha in the dysentery of Bengal, Mr. T. speaks in the highest terms. In cases occurring in children he states it to be unequalled by any remedy he has tried. The extract of gentian prevents the action of the ipecacuanha upon the stomach without impairing its curative properties. In the preface to the work the testimony of several other practitioners of India is adduced in proof of the beneficial operation of the remedy in this disease. The author might have extended his references to nearly all the authoritative writers on dysentery. By most of them the good effects of the ipecacuanha are pointed out in the strongest terms. In combination with the blue mass and minute doses of opium, we are ourselves in the constant habit of employing it, and always we are persuaded with decided advantage.

To remove the painful affection of the bladder, and suppression of urine that attend bad cases of dysentery, the author has found injections of cold water into the rectum to have the most prompt and certain effect. They will also, he states, be found an excellent remedy for the copious discharges of blood which frequently occur. In like cases a solution of ten grains of acetate of lead in ten ounces of water will often be beneficial.

Blisters Mr. T. recommends only after the more acute symptoms of the disease have been reduced by bleeding; a small blister near any local induration that may exist, is then often serviceable, especially if kept open for a week or ten days.

The administration of opium by the mouth in dysentery, Mr. T. entirely condemns. He has very often found it injurious by masking, as he terms it, the most deadly symptoms until the patient was past recovery. In cases, however, in which tenesmus is severe at night,

he has found an injection of sixty drops of laudanum in two ounces of cold water to remain in the rectum all night, and to promote greatly the comfort of the patient. In the use of opiates in dysentery, great caution is undoubtedly to be exercised. Until the violence of the inflammation is reduced by active depletion, they are, in general, inadmissible; but, after this has been effected, opium combined with ipecacuanha and the blue mass may be safely administered, and we have generally found its use to diminish the tormina and tenesmus, and in this manner procure great relief to the patient. Injecting opium into the rectum is certainly one of the most efficacious means we possess for relieving the distressing tenesmus which so frequently attends the disease. As an injection we prefer the solid opium rubbed up with olive oil, flaxseed tea or thin starch, to the laudanum as recommended by our author.

“Tenesmus,” remarks Mr. T. “is usually dependent on ulceration low down in the rectum; and may frequently be relieved by using an ointment composed of thirty grains of sugar of lead, mixed in one ounce and a half of fresh lard, of which a portion, half the size of a nutmeg, may be introduced into the rectum three times a day.”

When tenesmus remains after the more prominent symptoms of the disease have been removed, an injection of one drachm of acetate of lead dissolved in eight ounces of tepid water was a favourite prescription with MOSELY, and we are persuaded will in many cases be found to afford prompt relief.

No notice whatever is taken by the author of the administration of the acetate of lead by the mouth in the treatment of dysentery. We have ourselves employed it pretty extensively subsequently to active depletion by the lancet or leeches, in combination with ipecacuanha and opium, and in most cases have found it to produce the most beneficial effects.

The remarks of Mr. T. on the great importance of caution in regard to the nature and amount of the drink and food allowed to the patient during the disease, as well as in the stage of convalescence, are in the highest degree judicious. It is all important to keep the colon as nearly as possible empty while the least degree of inflammation exists, and during the healing of the ulcers which may have been formed in the intestines. While the disease continues, the mildest diluents only should be allowed, and for some time after its removal the patient should be restricted to bland unirritating food taken in very moderate quantity. “Errors in diet are the principal cause of tardy recovery and frequent relapses.”

When we perceive how fully the author is impressed with the im-

portance of guarding the inflamed bowels in cases of dysentery from every source of irritation—even that which may be caused by too large an amount of the blandest drinks, we feel the more surprised that he should be willing to subject them to the daily irritation of active purgatives.

Dysentery very often occurs in patients affected with what is termed land scurvy, which differs from the *porphyra hæmorrhagica* of Good, only in being less frequently accompanied by profuse discharges of blood from slight causes. In these cases the administration of mercury very generally proves exceedingly injurious. Their treatment may be trusted, according to our author, to the administration of the compound powder of jalap, in such doses as shall effectually carry off the vitiated secretions without irritating, together with the ipecacuanha combined with extract of gentian; while a more restorative diet is allowed than would be consistent in uncomplicated cases. Still excess of food must be guarded against.

Mr. T. describes at page 63, a form of dysentery in which the inflammation is chiefly confined to the rectum and lower portion of the colon: but as these cases require no essential modification of the treatment already noticed, we shall pass over the observations of the author in regard to them.

In describing the post mortem appearances in fatal cases of dysentery, we noticed various morbid conditions of the cœcum as of occasional occurrence; at page 69 Mr. T. directs the particular attention of his readers to these affections. Their neglect leads to almost certain destruction of those patients in whom they occur. No particular change in the general treatment of the case, however, is demanded. All that is necessary is for the practitioner to bear in mind the possibility of the occurrence of more or less violent inflammation of the cœcum, and by the most undeviating perseverance in the employment of the remedies demanded for its removal, especially the local application of leeches, to prevent the disorganization of the intestine and the death of the patient.

“When,” remarks Mr. T. “a considerable enlargement of the cœcum takes place during dysentery, it is usually first noticed about ten or fourteen days after the commencement of the disease. The disease is not usually attended with so much pain as to make the patient complain particularly of the part affected, and unless the practitioner habitually examine the abdomen of those he is treating for dysentery, he will be occasionally told of the swelling, at a period of this disease when the patient is past recovery: or he will find, on dissection, such a mass of disease and inflammation, with induration in the right iliac region, that he will be surprised how it could have escaped his notice during life. Except in fat persons, the rounded, doughy, inelastic tumefaction of the cœcum

is easily detected by examination with the hand; and, in fact, is often visible on inspection."

"It requires to be treated, by *the* daily repetition of leeches to the part; fomenting, and applying hot poultices to the leech-bites while they are bleeding. After the morbid sensibility of the part is removed, and the tumefaction much reduced, it is requisite to disperse the remaining induration, by a blister kept open over the part, and by just such a course of Plummer's pill, and extract of colocynth, at night, followed by *the* compound powder of jalap, in the morning, as would be suitable to remove induration that had immediately followed an inflammatory swelling on the arm, or thigh, or any other part of the body; only, here we must remember, that no part of the disease can be left unsubdued, without hazard to the patient's life."

In cases where intussusception of the ileum into the cœcum occurs, the most active antiphlogistic measures are requisite until inflammation is subdued; after which entire quiescence in the recumbent posture must be observed.

When in cases of dysentery sloughing of the mucous coat of the intestines take place, the patient is very generally destroyed. In such cases, however, the author has occasionally seen good effects to result from the administration of quinine with small doses of opium.

In *chronic dysentery* the patients are much debilitated and distressed by frequent watery purging; the fæces are mostly of a pale-gray colour, mixed with mucous and more or less white matter. A portion of the food is often discharged undigested, the evacuations being of various hues. The stools sometimes consist of a copious paste-like brown mass, in a state of fermentation. Occasionally they are frothy, with a whitish or pale-gray sediment like a mixture of chalk and beer. In a few very protracted cases the stools are very copious, quite watery, and vary from bright orange to a pale straw colour. Blood is rarely present in the discharges, and the patients do not suffer from fever excepting in those cases in which there is extensive irritation of the mesenteric glands; and then, occasionally, hectic fever is observed. The abdomen is generally flat, inelastic, and somewhat retracted; in a few cases, however, tympanitis is a troublesome symptom. The skin is often arid, shrivelled, and desquamating.

"The objects," remarks Mr. T. "to be held in view in *the* treatment of chronic dysentery, are to remove the local morbid affections and restore the patient's strength. For these purposes, our remedies must be directed to procure a regular and uniform secretion from the mucous membrane of the intestines, by the influence of mild purgatives; and by such remedies as have the property of restoring capillary circulation to a healthy state, and moderating profuse discharges; for this latter purpose, frequent small doses of ipecacuanha answer very well." "Leeches are frequently of much service; and when-

ever indurations can be felt, unattended by morbid sensibility on pressure, or by any pyrexia, blisters are generally very important remedies."

In cases attended with any degree of morbid heat, Mr. T. directs a mild purgative of compound powder of jalap, but in those with a dry, shrivelled, and cold skin, he prefers a drachm of sulphur mixed with mucilage and cinnamon water. After the purgative, the patient is to take ipecacuanha, extract of gentian, and blue mass, of each four grains, to be repeated every night, and at noon, daily, a wine-glassful of the following mixture. R. Infus. ipecacuanhæ, ℥j.; Infus. gentian. compos., Misturæ camphoræ, āā. ℥v.; Tinct. cardamon. comp., ℥ij. M. The infusion of ipecacuanha is made from ℥j. ipecacuanhæ to ℥j. of boiling water. During the whole treatment, the patient is to be confined to a mild, unirritating diet in very moderate quantity.

We have nothing particular to object to the above treatment, with the exception of the daily administration of purgatives, from which we are persuaded no good can result, while it is certainly calculated to add to the irritation under which the intestines are labouring, and to prevent the healing of ulcerations. In the treatment of chronic dysentery we have seen the best results from the judicious employment of leeches, the internal administration of the ipecacuanha and blue mass, in conjunction with the daily use of the warm bath, or fomentations to the abdomen assiduously employed, and a properly regulated but restricted diet. Attention to diet, in many cases, is of equal, if not of more importance than the exhibition of remedies.

The views of our author in relation to the pathology and treatment of dysentery are illustrated by the history of thirty-one cases.

The consideration of the *diseases of the liver* forms the subject of the second chapter. It will be impossible for us to notice the highly interesting observations of our author in regard to these diseases so much in detail as we have those on the disease which precedes. We have only room for a brief sketch of the more important of his remarks.

After noticing the fact that many practitioners are too much in the habit of ascribing every obscure chronic affection to some functional disorder of the liver, and by the injudicious use of mercury increasing the disease under which the patient actually labours, when probably the liver is entirely unaffected, Mr. T. enumerates the various morbid appearances he has detected in those who have died in Bengal after suffering from hepatic disease, and then details the symptoms of acute hepatitis.

In many cases, he remarks, inflammation of the liver is often far advanced towards suppuration without the patient having suffered much pain. By a careful examination, however, Mr. T. has always been enabled to detect the disease of the liver long before there was any reason to believe that suppuration existed.

“The best mode of examination, is to place the patient on his back on a couch, the head not being raised, and then to stand at the foot of the bed, so that we can see if the right side be enlarged, the cartilages of the ribs heaved up, or if there be more fulness at the right side of the epigastre than at the left. We ascertain the existence of pain, or induration, by careful pressure over the right hypochondre, while the right false ribs and side are raised by one hand, so as to carry the liver forwards. Having examined the state of both hypochondria, and the epigastre, during a full inspiration, as well as during a full expiration, and when the right thigh is bent, as well as when it is extended; we afterwards turn the person gradually over towards the left side, so as to be lying almost on his face, and then press carefully over the region of the liver, desiring the patient at the same time to make a full respiration.”

According to our author the most prevalent form of acute liver disease in Bengal is an inflammatory congestion with tendency to central abscess of the right lobe of the liver. A very common and early symptom of this affection he has found to be a much greater degree of *tension of the right rectus abdominis muscle*, than of the left; the muscle on the right side resisting pressure by a quick involuntary action, while the left muscle is lax, and the other parts of the abdomen soft and elastic. He has seen the left muscle affected in the same way in patients who have afterwards died with abscess in the left lobe only. After protracted cases of this form of hepatic disease, especially when they occur at the latter end of the rains and beginning of the cold season, Mr. T. has observed on dissection, in the cellular structure of the mediastinum some degree of interstitial deposit of an albuminous appearance. The cellular structure at the root of the mesentery and mesocolon, particularly across the upper lumbar vertebræ is, also, often in a state of vascular engorgement, with more or less of serous infiltration. Oppression at the chest and tension of the belly are frequently produced and kept up by these morbid conditions, as well as by the turgescence of the liver.

The author describes another form of liver complaint, distinct from the preceding, as common in Bengal at all seasons of the year. It sometimes follows fevers, but generally occurs without any very apparent cause.

“The patients complain of pain at a circumscribed space about four inches above and to the right of the navel, on a line drawn from the umbilicus to the

point of the right shoulder; and the disease is attended by the following circumstances. The attack sometimes commences suddenly after eating, and in that case the food is usually vomited, whereby a transient relief is experienced; the respite is but short, for the pain soon returns, and pressure over the part cannot be borne; a full inspiration increases the pain, and the patient is unable to stand erect, or to lay straight in bed; he rests with the body bent forward, and inclining to the right side; there is great anxiety, and the nights are passed without sleep; there is usually a sense of weariness and pain in the loins: tumefaction of the liver is seldom evident. In severe cases the pain shoots back towards the lower angle of the scapula or up towards the shoulder, and is of the acute kind that is usually spoken of as a stitch or spasm, which prevents coughing or sighing. The bowels are usually costive at first, the urine high-coloured, and jaundice sometimes takes place. There is a dry tongue, thirst, head-ache, and a frequent pulse, but not generally very high fever corresponding with the acute pain. In the latter stages of the disease, a distressing purging of black watery fluid takes place, and sometimes much blood is passed by stool. Severe cases, if not arrested by a very decisive and persevering treatment, will run their course in twenty or twenty-five days. During the last six or eight days, the profuse discharge from the bowels usually attracts most attention, and the patient dies from irritative fever, produced by inflammation and congestion, which affect not only the liver, but the capsule of Glisson; and in some measure extend to the cellular structure round the duodenum, and at the root of the mesentery. It is not common for abscess of the liver to form, after the course of disease above described, though that is sometimes the case.

A less acute affection of the same parts is very frequently met with, the pain is less severe and does not extend to the scapula and shoulder, nor is it very distressing even upon pressure. Occasionally there is slight fever, and most generally the tongue is moist, yellowish, and loaded; in protracted cases it becomes sometimes clean. The urine is often high-coloured for several days and then resumes its natural appearance. There is occasional nausea with impaired appetite, a sallow, haggard, and lurid countenance, the limbs become slowly emaciated, the abdomen is tense and sometimes tumid. The bowels are usually irregular, the evacuations being scanty, black, and costive for a day or two, and then fluid and unsatisfactory; sometimes nearly white, at others tinged with blood. Mr. T. has seen cases of this kind continue for eight or ten months; the patients having been repeatedly salivated and blistered. The disease is liable to change into the acute form and terminate in abscess of the liver; in emaciated subjects, however, it more commonly causes jaundice or dropsy.

Mr. T. is of opinion that the stimulant and opium treatment of delirium tremens often lays the foundation of abscess of the liver, or in other words, that hepatic abscess would less frequently succeed to

delirium tremens were the febrile and inflammatory symptoms, with which the latter is so often accompanied, treated by antiphlogistic remedies.

“The following diseases,” according to our author, “are liable to be mistaken for affections of the liver, viz. empyema, or hydrothorax of *the* right side of the chest; disease of the right lung; ulcers and some chronic disorders of the stomach; disease of the duodenum, or of the cœcum, and a loaded state of those intestines without actual disease; a scirrhus pylorus; indurated pancreas; induration of the transverse colon in severe dysentery, with a solitary large sloughing ulcer and thickening of the coats at that part of the intestine; adhesion of the omentum majus to the cœcum, or to the brim of the pelvis.”

In two cases Mr. T. has known an affection of the spine, attended with pain of the right side, to be mistaken for diseased liver and treated with mercury to the manifest injury of the patients.

In the treatment of acute cases of hepatic disease, the object, according to our author, is to diminish considerably the amount of the circulating fluids, and permanently to subdue the action of the heart and arteries by active depletion; while by the use of purgatives, abstinence from food and allowing very little drink, to keep the system so empty and low that absorption shall be performed with activity. This condition is to be maintained by a steady perseverance in purgatives and repeated direct depletion, until the removal of the vascular turgescence is effected as well as the complete absorption of the interstitial deposite, of which more or less exists in almost all acute inflammations of the liver, very soon after the disease commences.

“In all severe acute cases of hepatitis,” he remarks, “the patients life depends on *a* systematic pursuance of general and local blood-letting, with quiescence and strict attention to almost entire exclusion of food; even drink should be taken in limited quantity, while we are endeavouring to empty the vascular system.”

Mr. T. advises the bleeding from the arm to be performed while the patient is in a recumbent posture to avoid the occurrence of syncope.

If tumefaction of the liver remains after the fever is removed, and the patient's strength is much reduced, he directs a blister, three inches square, to the epigastrium, which is to be kept running; at the same time from four to six leeches are to be applied around the edge of the blister daily, “so as to maintain such a drain from the capillary vessels, as *that* the strength may admit of its continuance for several days.” After this, half a drachm of camphorated mercurial ointment is to be well rubbed over the side once a day and a moderate purgation kept up.

Our author very properly objects to the application of a blister un-

til the symptoms of general excitement as well as the severity of the local disease have been subdued. He warns his readers, also, against a too speedy cessation of active treatment. In almost all acute cases of hepatitis the urgent symptoms are mitigated long before the local disease is entirely subdued; if under these circumstances the practitioner be lulled into security and cease the exhibition of proper remedies, or neglect to confine his patient to a strict diet, a more intractable disease becomes established and eventuates in death.

The acute superficial inflammation of the liver and the inflammatory congestion with tendency to central abscess, as well as the inflammatory condition more especially affecting the capsule of Glisson with much hepatic congestion, require nearly the same treatment. In the milder cases of the last mentioned affection the daily repetition of leeches with mild purgatives and a well-regulated slender diet must be persisted in for a long period.

We pass over the section devoted to *abscess of the liver* with the exception of the two following paragraphs with which the section closes. These point out the causes which according to the author's experience give rise to very serious relapses of hepatic disease.

“Where a system of very active treatment for acute cases, is suddenly remitted after two or three days, and, at the same time, a premature return to a full diet gives rise to vascular repletion and increased action of the heart and arteries; causing serous interstitial deposit and central abscess of the liver.

“When bleeding has been either omitted, or inefficiently used at the commencement of acute inflammation of the liver, and the cure trusted to leeches and mercury, at the same time that low diet and tranquillity in the recumbent posture have not been strictly attended to, the disease, attended with obscure symptoms, is prolonged for several weeks, after which, an extensive abscess of the liver is almost inevitable.”

In the ensuing section the *chronic diseases of the liver* are considered. Many of the cases usually denominated chronic, the author is persuaded differ rather in degree than in any thing essential from the acute disease; and require a continued perseverance in the use of the same remedies; although the same activity of treatment is not demanded as in the latter.

“In fact,” he adds, “our distinct views of liver disease and satisfactory modes of cure refer almost entirely to the acute forms; and as we lose sight of these, the management of the disease becomes vague and unsatisfactory.”

Under the head of *Jaundice* we meet with several very interesting and important observations. The author has found jaundice, not only during its early stage, but for a long period afterwards, while the discoloration of the skin remains, to be very generally attended

with some morbid sensibility when pressure is made over the situation of the gall-bladder and capsule of Glisson, though the uneasiness, during the absence of pressure, is most generally referred to the epigastrium.

When the disease occurs in plethoric subjects, and the stools are of a pale clay colour, the author has found it almost always attended with fever, and in some cases he has known robust patients die with symptoms of oppressed brain, within thirty-six hours after the sudden appearance of intense jaundice, for the accession of which no cause could be assigned.

In consequence of the acknowledged obscurity which exists in regard to the true pathology of this disease, Mr. T. was anxious to ascertain the exact condition of the liver and biliary ducts in persons labouring under jaundice. The almost invariable existence of pain increased upon pressure, confined to a circumscribed spot on the right side, just below the centre of a line drawn from the right nipple to the umbilicus, led him early to suspect limited inflammation of some part of the liver to be the most frequent cause of the disease. This opinion was, he believed, confirmed by the good effects which, in the majority of cases, follow a systematic course of depletion: nevertheless, if circumscribed inflammation were the efficient cause of the disease, he was unable to explain why jaundice was so frequently absent during the progress of the most unequivocal and intense inflammations of large portions of that organ. On the dissection of subjects who had recovered from jaundice, only a short time before death occurred from other diseases, he could not discover any appearances in the liver by which he could fix upon any circumscribed spot as having probably been recently inflamed. But in the course of his dissections he found that albuminous infiltration sometimes takes place into the cellular structure of the capsule of Glisson. Within this capsule are situated two small bodies which, from their structure, appearance, and uniformity of situation, Mr. T. is inclined to believe are absorbent glands. One of these is situated near the termination of the gall-bladder in the cystic duct; the other at the upper part of the ductus communis choledochus. The superior gland is sometimes very small and occasionally it is more closely attached to the side of the gall-bladder than to the cystic duct. The lower one is more uniform in bulk, being usually half the size of a small bean, and it is always placed just at the commencement of the common biliary duct. The result of irritation affecting the absorbent vessels passing through this gland may, the author conceives, cause such a degree of swelling, as would produce transient compression and closure of the common

biliary duct so as to prevent the passage of bile into the intestines and thus give rise to jaundice. So long as the obstruction is complete, the stools will be nearly white or of a very pale-gray colour. In cases of jaundice however, he remarks, attended with severe fever and intense gastro-enteritis, the colour of the stools will very often be different, in consequence of the blood which is poured out by the capillary vessels of the intestinal mucous membrane, as well as from other morbid secretions.

“When previous inflammatory disease at the capsule of Glisson has been attended with infiltration of coagulable lymph into the cellular structure of that part, at a remote period, and its subsequent absorption has left a degree of induration and constriction, a very slight enlargement of the lower gland,” Mr. T. believes, “will effectually compress the common biliary duct, and *he* has seen its canal obliterated from that cause, exactly at the point of contact with the tumid and indurated gland.”

Mr. T. has also seen the cystic duct obliterated where it was in contact with the upper gland, in consequence of the enlarged and diseased state of the latter. But he does not apprehend that this could have any influence in the production of jaundice.

Our author does not deny the influence which biliary calculi, or tumours of the pancreas, liver, or spleen, or scirrhus pylorus may occasionally have in producing icterus; nor that in some rare cases the disease has been excited by mental emotions. He is unwilling, also, to place undue emphasis on the observations upon which his own views of the most frequent cause of the disease are based. He believes, however, that should the latter upon more ample investigation be found to be correct, it will have an important influence upon our general treatment of the disease.

According to Mr. T. the most successful plan of treating jaundice consists principally in depletion by the lancet and leeches, active purgation, the use of the warm bath and sudorifics, aided by low diet and quiescence, in the beginning of the disease, followed by milder purgatives, a small blister over the region of the gall-bladder, kept open for a long time. Subsequently a course of Cheltenham salts, or small doses of rhubarb and sal. polychrest, with gentle exercise, and frictions with camphorated liniment over the right hypochondrium are adviseable. At the same time it may be proper to allow a mild unirritating diet, in such quantities as shall improve the patient's strength. The disease may sometimes occur under circumstances that forbid depletion; this Mr. T. conceives to be an unfortunate case, as he has but little confidence in other modes of treatment.

In cases of jaundice in which the stools indicate the entire absence of bile from the intestines, the author considers the use of mercurials to be of doubtful propriety. But when bile does pass into the duodenum, he admits that calomel may be useful in conjunction with the remedies already detailed. Excepting in cases in which there is tolerably distinct evidence of the existence of biliary calculi, which he believes to be less frequently a cause of jaundice than is generally imagined, he doubts the propriety of having recourse to opiates.

Whether the views of Mr. T. in regard to the pathology of jaundice be or be not correct, we cannot pretend to decide until we shall have had an opportunity of testing them by a series of actual observations; but in respect to his plan of treating the disease, with one exception only, we believe it will be found to be in the generality of cases the only proper and successful one. The exception to which we allude is the indiscriminate administration of purgatives. Jaundice is not unfrequently connected with extensive irritation of the stomach and small intestines, and in these cases we are persuaded that the employment of purgatives to the extent recommended by our author would be decidedly injurious.

The next chapter, (Chapter III.) treats of *diseases of the spleen*. The whole of the observations presented by our author under this head are particularly interesting, not only from the frequency, severity, and danger of these affections in particular climates and localities, but from the peculiar morbid condition of the system, which the author has found to proceed and accompany them; and also from the modifications which are produced in the character and tendency of other diseases which happen to occur at the same time.

Of the physiology of the spleen we know absolutely nothing, and of our acquaintance with its pathology nearly the same statement may with propriety be made. It is important then, that all the phenomena attendant upon the diseased conditions of this organ should be studied with care, not only that we may be led to correct views of their nature and treatment, but in order, if possible, to acquire from this source some knowledge of the functions which the spleen performs in the animal economy during a state of health. We cannot say that the observations of our author throw much light on either of these points; nor do we think that he has investigated in a very satisfactory manner the nature of the morbid phenomena by which disease of the spleen is so generally accompanied. Notwithstanding he tells us, that “instead of viewing the enlargement of the spleen, as the principal object for investigation, it will be consistent with a correct view of the disease now under consideration to speak of the enlarge-

ment of the spleen, as one of the phenomena usually attendant on a peculiar description of constitutional disorder;" yet it is very evident that he considers the latter to be intimately connected with, if not dependent on the former. In casting the eye over the list of symptoms which he has given us as those attendant upon diseases of the spleen, the reader will perceive that many of them are referable to an affection of the stomach and nutritive apparatus generally, and may exist independent of the splenic disease. In all probability, even in cases where the latter is present, they owe their origin to the same causes as gave rise to the affection of the spleen. In many instances, however, the latter would appear to be a secondary, and not a primary disease. In his account of the post mortem appearances, Mr. T. has omitted to notice the state of any other organ than the spleen. He has in this, as well as in other instances, committed an error very common with the English pathologists, that, namely, of directing his attention solely to the organ in which the anatomical indications of disease are most prominent, overlooking entirely the indications of disease in other parts derived from the symptoms which occur during life. It is from the physiological, combined with the anatomical study of diseases, that the most important results are to be anticipated. Were all the phenomena which the author describes as accompanying splenic disease actually dependent upon the latter, they would afford no slight support to the opinions of some modern physiologists, that the spleen is the centre of the organic nervous system.

The symptoms accompanying diseases of the spleen are the following. General debility, paleness, and a deficiency of red blood in the capillaries, most remarkable in the pale and bloodless appearance of the conjunctivæ, blueness or pearly colour of the scleroticæ, and chlorotic discoloration of the face, tongue, and gums. The circulation is generally languid; the extremities are liable to become cold; the skin is pale, shrivelled, and dry. Females affected with enlargement of the spleen are liable to suffer from amenorrhœa—regularity of the menses is for the most part a favourable symptom. During the continuance of vascular engorgement of the spleen, the patients are very liable to hæmorrhages, or to sloughing ulcers from slight wounds or bruises. When local inflammations exist, that healthy constitutional energy upon which the deposition of coagulable lymph, and by which we find injuries repaired, and the extension of ulceration and the progress of sloughing arrested, on ordinary occasions, seems to be in a great measure, if not entirely wanting. Foul gangrenous ulcers of the mouth and lips are liable to form from trifling causes, and often

without any apparent cause, producing a destruction of the teeth, and caries and exfoliation of the jaw bones. These affections of the mouth occur most commonly when mercury has been administered. Mr. T. is of opinion, that the cancerous, (gangrenous sore mouth of children,) as described by Dr. CUMMING,* corresponds exactly with the splenic cachexy of Bengal now under consideration, and we find that among the few dissections reported by Dr. C. disease of the spleen is noticed. Hæmoptysis and hæmatemesis occasionally occur when the enlargement of the spleen is considerable: the blood which is vomited probably flows sometimes from vessels communicating directly with the splenic vein, as the intumescence of the spleen has been observed in some cases to be immediately removed by these evacuations of blood. The blood drawn from the veins varies in appearance. Sometimes it coagulates imperfectly without the separation of the serum; in other cases the cruor is black and soft, and when exposed to the air its surface does not commonly assume the florid colour, as it does in blood drawn from a healthy subject. It seldom exhibits a buffy coat, excepting in cases attended with considerable fever, or acute pain in the side. Most patients are affected with a short and imperfect respiration, their general appearance evincing that the decarbonization of the blood is deficient. Any attempt to take active exercise excites panting and distress at the chest. Impaired appetite, difficult digestion, and imperfect assimilation of the food are among the usual attendants on vascular engorgement of the spleen. There is generally despondency and depression of spirits, inactivity of body, torpor of mind, and much muscular debility, even when the patients are not much emaciated. When fever is absent the urine is pale, often copious. In the latter stages of the disease œdema of the feet, and sometimes of the face and eyelids is present. In the majority of protracted cases, dysentery or ascites occurs. When the abdomen is much distended with fluid, the superficial veins on the sides of the chest and belly appear large and numerous, “showing the extent and degree to which the circulation in the internal organs becomes ultimately obstructed.”

The assemblage of symptoms above described constitutes “the endemic cachexia of those tropical countries that are subject to paludal exhalations.”

“The enlargement of the spleen is the most frequent attendant on this cachexia, and its increase or subsidence generally corresponds with the unfavourable or favourable changes, which are taking place in the constitution. It is, however, proper to observe here, that the constitutional symptoms sometimes

* Dublin Hospital Reports, Vol. IV.

exist in a very marked degree, where neither enlargement nor morbid sensibility of the organ itself, are very palpable."

Chronic enlargement of the spleen is stated to occur in adults of a pale, sallow, and unhealthy aspect without producing much suffering excepting that arising from the tumid state of the abdomen, shortness of breath, and occasional returns of indistinct ague. In children, however, affections of the spleen are always a very distressing and obstinate malady; in general quickly inducing a state of extreme marasmus.

Diseases of the spleen often occur in conjunction with dysentery, intermittent and remittent fevers, scorbutic affections, and sometimes with diseases of the liver.

In the course of remittent fevers the tumefaction of the spleen sometimes comes on very suddenly, and proceeds quickly to an enormous extent. In extreme cases the diseased organ will fill more than half the abdomen, extending to the right of the navel, while its lower extremity reaches the left iliac region.

"The progress of vascular engorgement of the spleen is more or less rapid, according to the injury which the constitution may have suffered from a damp climate, and the nature and duration of the fevers which the patient may have recently suffered."

Most of the cases of vascular engorgement of the spleen in Bengal follow intermittent and remittent fevers; while tumid spleen is the most invariable consequence of acute and debilitating diseases affecting adults as well as children. Enlargement of the spleen is sometimes produced by "the combined influence of a damp climate, variable temperature, want of exercise, and insufficient nourishment." It may also be brought on by long-continued grief and distress of mind.

In the greater number of instances the affections of the spleen just described are unattended with local inflammation; there is, however, almost always morbid sensibility on pressure being made over the left hypocondrium during the early stages of enlarged spleen. Mr. T. believes that acute inflammation of the peritoneal coat of the spleen is a rare disease. It sometimes, however, exists without much enlargement of the organ, "and then the symptoms very much resemble pleuritis of the left side."

The following are the morbid appearances in the spleen detected upon dissection. The most frequent are placed first in order.

"A soft, rounded enlargement of the spleen, the texture less firm than in the healthy state, and easily broken if the finger be pushed abruptly against it. In some cases it is so much softened that it resembles a great clot of blood, wrap-

ped in a thin membrane. This varies in colour from black, to brown or blue, and in the extreme degree of softening, when we attempt to lift the tumid spleen, the fingers are thrust through the membrane, and the organ breaks down in the hands, becoming a putrid gore. This soft, globular enlargement from vascular engorgement most commonly attends, or follows, the severe remittent fever of the rains and cold season, attacking weak and unhealthy young persons.

“Oblong enlargement of the spleen; the organ being more firm in texture than in its natural state, its edge thin and notched. The colour being sometimes a pale-brown, though more generally a dusky-red. This morbid change of structure would appear to be the result of more slow and gradual degeneration, which in its earlier stages has probably been attended with some inflammatory condition of the internal structure of the spleen. In such cases we also find evidence of superficial inflammation, attended with adhesions to the adjacent parts, more frequently than in the rounded enlargement from simple vascular engorgement.

“Opaque patches of various sizes, some of these extend over half the convex surface of the spleen, and are nearly an eighth of an inch thick, they may be deemed the result of albuminous depositions during superficial inflammation.

“Adhesions of the peritoneal coat of the spleen to contiguous viscera, which adhesions are by no means a general result of tumid spleen in Bengal.

“In a few old cases, we find a more indurated and friable spleen, that breaks when handled without much force, like a piece of old moist cheese.

“Still more rare is the firmer induration intersected with septa of condensed fibrous structure, to which we give the name of scirrhus.

“Tubercles of various size, generally small, and of a gray or brown colour.

“An organized coagulum in the splenic vein.

“Encysted tumours.

“Abscess of the spleen.

“The four last mentioned morbid appearances are exceedingly rare in Bengal.

“Besides the above appearances of disease, we sometimes see a uniform pale-white or milky colour of the peritoneal coat of the spleen; which tunic is unusually tough like a thin bladder that had been dried and afterwards wet in hot water: the substance of the spleen being soft and flexible. This has been observed in the post mortem inspection of several persons who had been long subject to agues. In patients who have suffered from spleen disease and are destroyed by a purging, numerous small ulcers are found on the internal membrane of the great intestines, while the peritoneal coat appears either quite healthy or paler than usually: the mesenteric glands in such subjects are often enlarged.”

In regard to the treatment of splenic affections, the plan which Mr. T. has found most successful in cases of vascular engorgement, is “perseverance in a course of purgative medicines, combined with bitters and some preparation of iron; of which, small doses of the sulphas ferri appear to be the most efficacious.” His usual formula in cases in which there is not much fever, is—*R. Pulv. jalap., Pulv.*

rhei, Pulv. columbæ, Pulv. zingiberis, Potassæ supertart. āā. ℥i., Ferri sulphatis, ℞ss.; Tinct. sennæ, ℥iv.; Aquæ menthæ sat. ℥x. M. Of this, the dose for an adult is ℥jss., at 6 A. M., and repeated at 11 A. M. For children, the dose is regulated so as to produce not less than three, and not more than four stools daily. “This medicine acts as a purgative, tonic, and diuretic.” When the patient is very costive, Mr. T. adds Pulv. scammon. comp. ℥i. to the mixture, while for very delicate and emaciated subjects who are easily purged, he substitutes compound tincture of cardamoms for the tincture of senna; and when there is any disposition to intermittent fever the addition of ℞ss. Sulph. quiniæ is made to the powder. In obstinate cases the author has found it useful to change the prescription occasionally. Thus, after continuing the first mixture for ten days, he omits it and directs for an adult, Ext. comp. colocynth. grs. viij., Gambog. grs. ij. in pills at bed-time, and xx. gtts. Tinct. ferri muriat. in a glassful of water, with Tinct. gentian. comp. ℥j., at 7 o’clock, A. M. and repeated at 11 A. M. After continuing these remedies for five days, the use of the first mixture is resumed for ten days longer, and then half a drachm of the powder of *black myrobalan* with half a scruple of *black salt* every morning, and two grs. sulphate of iron and two of aloes in pills at bed-time.*

At any time during the treatment, if febrile symptoms occur, the above remedies are omitted; a dose or two of jalap is given, and bleeding or leeches resorted to. In a few cases enlarged spleen is attended with febrile catarrhal symptoms; these are to be removed by direct depletion, purgatives and the tepid bath, before commencing on the mixture of sulphas ferri.

In Europeans labouring under splenic disease, when the strength is not much reduced, Mr. T. found bleeding to be required, with the application of from four to ten leeches over the region of the spleen every second day. Whenever fever exists, or bleeding is demanded, he has found it beneficial to direct a purge of compound powder of jalap or of scammony and cream of tartar, with a grain of gamboge daily for a few days before the mixture containing sulphate of iron is prescribed.

In treating diseases of the spleen, a careful attention, our author remarks, is necessary to regulate the patient’s diet. Whenever fever or local inflammation is present, the diet must be of the mildest and most unirritating kind. In the early stage of vascular engorgement,

* The black myrobalan is the small, black, withered, and dried unripe fruit of the *Terminalia chebula*, and the black salt a combination of certain proportions of black oxyd of iron, sulphur, muriate of lime, and muriate of sodæ.

when the strength is not much reduced, with only occasional slight pyrexia, the diet should consist of tea, bread, sago, gruel and chicken, or kid broth in very small quantity. But in more chronic cases a portion of roasted or boiled meat and curry may be allowed. In these cases, Mr. T. thinks that a small quantity of port wine and water, or beer may be taken with benefit at dinner. For ourselves, we should consider either of doubtful propriety.

In chronic affections of the spleen great advantage is derived from the application of leeches daily or every second day over the left hypochondrium. The patient at the same time persisting in a moderate course of purgatives and some preparation of iron. The diet should be spare, with only a small quantity of meat or *fried fish*? vinegar or pickles may be taken at dinner.

“Blisters or issues over the region of the spleen are of service, but we should be careful of applying them to emaciated, leucophlegmatic, or dropsical subjects, during the rainy season, as sloughing ulcers are then liable to be excited by them. Much benefit is derived from a flannel bandage or broad belt of flannel applied moderately tight, so as to support the weight of the spleen, and it is important that the whole belly, but especially the left side, should be rubbed for an hour twice a day with heated flannel. If there be an open issue, the side may be rubbed round that. Liniments are not of much use.”

In cases of splenic disease, the author warns in the strongest terms against the use of mercury in any quantity. It produces, he states, almost invariably, extreme debility, depression and exhaustion—premature salivation, destructive ulceration and horrible sloughing of the gums, lips, and cheeks.

Mr. T. has given an interesting section on the remedies employed by the natives of Bengal, for disease of the spleen, which we have reluctantly to pass over.

Our readers, we are convinced, will need no apology for the space we have occupied in our notice of the present chapter of Mr. T.'s work; the importance of many of the author's observations on diseases of the spleen, required that a very full analysis of them should be presented, and in so doing, we have left ourselves no room for comment.

The next subject of which our author treats is *cholera*, (Chap. IV.) Differing as we do on many points, from the views advanced by Mr. T., in relation to the pathology of this disease, and dissenting from him as to the propriety of some parts of the plan of treatment he has laid down, we felt desirous of entering into a very full examination of this portion of the work. As this, however, in order to do full justice to the subject as well as to the author, would lead

to a discussion of the nature and proper treatment of cholera, and consequently extend our review to an unreasonable length, we are under the necessity of passing over the whole chapter. This we do with the less regret, from the persuasion that our readers have by this time become nearly tired of the subject, important as it is in every point of view. We may remark, however, that our author is a staunch non-contagionist. In the concluding section of this chapter he presents a general view of the facts which bear upon the subject of contagion in cholera, all of which are inconsistent with the supposition of the disease being propagated from the sick to the well or by fomites in the proper sense of the term.

The fifth and last chapter of the work treats of *fevers*; or, more properly speaking, it comprises some general observations on the pathology and treatment of the forms of fever most prevalent in Bengal. These are intermittents, the common continued fever of the hot season, the remittent fever of the rains, and the insidious congestive fever of the cold season. Although most frequent during the seasons specified, these fevers occur occasionally at all periods of the year.

Mr. T. denies most positively that fever depends invariably on local inflammations.

“For although,” he observes, “our Bengal fevers are probably more generally attended with inflammation of some organs, at particular stages of the disease, and more frequently followed by obstinate and excessive visceral disorders, than the fevers of any other country, still we have strong evidence that fever in its early stage differs widely from the commencement of local inflammation.”

Now this “strong evidence” we are gravely told is deducible from the extensive, nay almost general affection of the system with which fever commences; and then we are furnished as additional proof with the celebrated definition of Dr. FORDYCE. It is very evident from the tenor of Mr. T.’s remarks on the pathology of fever, that he is entirely unacquainted with the doctrine against which he has protested, and we regret that he has not had an opportunity of acquiring a knowledge of it. Had he studied it with care, his opinions in regard to the nature and treatment of fevers would in all probability have undergone a very considerable modification. His own observations affording most striking illustrations of the correctness of the pathology of fever advocated by the physiological school.

The principal peculiarities which mark the *intermittent fevers* of Bengal, appear to the author to be the great frequency and obstinacy of the visceral disease by which they are in general attended. In the early stages, or within two or three weeks from their commencement,

in persons of robust habit, there is very often disordered function and secretion of the digestive organs, especially the stomach, with congestion of the brain—sometimes tolerably distinct evidence of an inflammatory condition of the latter organ or of its membranes. The liver also often shows signs of disorder at an early period—hepatic abscess is not however frequent at more remote periods. In patients who have an unhealthy look, the spleen will more commonly be found diseased, this organ exhibiting various combinations of inflammatory and congestive affection, that terminate in induration of the most obstinate character. The mesenteric glands and the cellular structure at the root of the mesentery and mesocolon are often found more or less diseased in protracted and obstinate cases. The lungs are not unfrequently the seat of congestions and sub-acute inflammation in obstinate quotidians and quartans.

We cannot conceive how the author can reconcile the statements contained in the following paragraph with his general denunciation of the physiological doctrine of fevers.

“I would not be disposed to assert, that the intermittent fevers of this country are to be looked on as the invariable concomitants of local inflammations, or diseases of structure; but I know *they are very generally found to be so*, by those who examine their patients with accuracy, and that obstinate intermittents are most easily and permanently cured by those practitioners who evince the greatest dexterity in detecting the coëxistent disorder, and the greatest skill in removing it. I am quite ready to acknowledge that many incipient intermittents are perpetuated by, or connected with mere functional embarrassment, which is very often seated in the mucous surface of the stomach and intestines, the indications of the more transient congestions, being in all cases slight and indistinct, and we occasionally, though rarely, see a regular paroxysmal fever of long existence, in which we cannot detect any evidence of predominant local affection.”

The expression, “mere functional embarrassment” of the stomach made use of above, either implies *disease* of the stomach, or it means nothing. The fact is, Mr. T. seems to be afraid of being led to the very conclusion to which all his observations seem so distinctly to point, that fever, namely, whenever it exists, is the invariable concomitant of some local irritation of greater or less intensity.

The author very properly denies the universal dependence of intermittents upon malaria.

“It is abundantly evident to every medical man,” he remarks, “in Bengal, that intermittents are intimately connected with the diurnal changes of temperature which take place at the commencement of the cold season.”

When cold nights and foggy mornings commence and the heat of the day is much decreased, even in situations which may be consi-

dered the most favourable for the production of malaria, he is of opinion, that abundant facts would oblige us to ascribe those fevers in a considerable degree to abrupt changes of temperature.

We cannot follow in detail the very excellent observations of the author upon the proper treatment of intermittent fever. We can only notice his experience of the good effects of bleeding during the cold stage. The abstraction of blood at this period, he has found in the greater number of cases to arrest the paroxysm; that is, the occurrence of the hot and sweating stages is prevented; and the majority of patients who have been treated with a sufficient course of mild purgatives before the bleeding, will not have a return of the disease, provided they are well clothed and not exposed to atmospheric vicissitudes. In this manner we cut short the fever, and guard against those ulterior visceral engorgements and indurations of internal organs, by which it is too often prolonged until the constitution is completely ruined. The only period of the cold stage at which bleeding will be proper, Mr. T. states to be at the commencement of the rigor, or just when the coldness and shivering are completely established. In general, he has found it sufficient to take twelve to fifteen ounces from an adult, and in the most robust Europeans he would limit the quantity to be taken at one bleeding to twenty ounces. The patients should be permitted to lie quiet for an hour or two after the bleeding, and not heated with too much bed-clothes; they should be supplied with a cup of warm tea or gruel, or thin warm sago soon after the arm is tied up.

“The requisites to insure success *from* bleeding in the rigor, are 1st, the preliminary course of moderate purging; 2d, that the blood be taken from a large orifice quite as soon as the coldness and rigor are fairly established; 3d, that the patient be bled in the recumbent posture, and no more blood taken than arrests the paroxysm.”

In robust plethoric patients, who during the intervals of the paroxysm complain of head-ache and morbid tenderness on pressure over the abdomen, and pain or uneasiness in the chest, the disease will seldom be arrested by the first bleeding; in many cases they will have repeated paroxysms, in each of which the use of the lancet will be required. Patients also in whom the paroxysm, more especially the cold stage, is attended with vomiting, Mr. T. has found to require the repeated abstraction of small quantities of blood during the rigors.

The *continued fever* of the hot season of Bengal generally attacks suddenly. It is sometimes ushered in by rigor, and occasionally the attack commences with violent and long-continued vomiting of green

bile. The prominent symptoms of this form of fever are heat of the surface, increased frequency and fulness of the pulse, great thirst and head-ache. There is a sudden prostration of strength, and in some cases a degree of stupor.

“*Local inflammations*,” remarks the author, “are manifest very early; the organs principally affected are the brain, the stomach, the cellular structure around the duodenum, and at the root of the mesentery and the liver.”

The progress of the disease, if left to itself, is usually rapid, and the termination fatal. The patient is distressed with restless nights, and after some time delirium ferox takes place, this is succeeded by stupor which ends in death.

The usual causes of this disease are insolation, violent exercise in the hot season, bathing when overheated, and the excessive use of wine or ardent spirits.

The treatment advised by the author consists in active depletion, leeches to the head, abstinence from food, and the other remedies usually prescribed in what are termed inflammatory fevers. The only objections we have to make to this plan of treatment, as it is directed to be carried into effect by Mr. T. are the omission of leeches to the stomach in cases attended with “fulness and tension of the epigastrium, and morbid heat of the belly,” and his profuse administration of active purgatives, “so as to procure not less than four free evacuations daily.” In an insidious form of this fever, described by the author, attended with decided gastro-enteritis and obscure cerebral affection, it is true the frequent application of leeches to the epigastrium and head, and a diet of tea or very thin barley water, are very properly insisted upon; but even in these cases, where the existence of inflammation of the stomach and bowels is acknowledged, his fondness for purgatives leads him to advise blue pill and compound extract of colocynth at night, and jalap and compound powder of scammony in the morning daily, or when they are rejected, senna tea or Epsom salts every hour until they operate freely. It is in vain to assert that the propriety of these remedies is proved by the general removal under their exhibition of the disease. We know that the repeated administration of active purgatives does increase irritation of the stomach and bowels, and that the very forms of fever our author describes, are more *promptly* and *effectually cured* without than with the use of purgatives, provided leeches be applied in sufficient numbers to the head and stomach.

The *remittent fevers* of Bengal, as described in the chapter before us, do not appear to differ materially in their symptoms from the bilious fevers of the southern states.

“The closest attention to clinical observations,” remarks Mr. T. “as well as the result of post mortem examinations, convince me that remittent fevers in Bengal *are invariably connected with local congestions*, which often run rapidly into inflammations, attended with much interstitial effusion. The seat of these local affections is found principally in the stomach, intestines, cellular structure about the duodenum, and at the root of the mesocolon, more especially where it passes across the spine. The principal disease is also often found in the spleen, liver, brain, or lungs.”

The treatment advised in cases of remittent fever, is active depletion adapted in its extent to the violence of the symptoms and strength of the patient, and repeated according to circumstances. The free use of active purgatives, especially large doses of calomel; the latter to be omitted, however, in cases in which the spleen is affected. The advantage of salivation appears to the author to be problematical.

“In most cases it is requisite to bleed freely in the early stage of the first and second paroxysm, after that we must be more cautious; but at any period, when the pyrexia and arterial action is increasing, it is always safe and useful to apply a few leeches to the head or epigastrium, according as the predominant symptoms may indicate their necessity.”

Such are the remedies for the height of the paroxysm. In regard to them precisely the same remarks apply as were made above in reference to the author's treatment of continued fever. When the paroxysm abates, sulphate of quinia is directed, to prevent its return; unless the brain be much affected or local inflammation is evident. These affections should always be removed before the quinine is commenced with. But even when they are present the author thinks that a few small doses of quinia given in solution, during the period of apyrexia, will enable us to subdue the disease with greater ease. From this opinion we must, however, dissent; in the treatment of all fevers the complete reduction of the symptoms of local inflammation by appropriate remedies, especially the free application of leeches, will more effectually prevent the return of the paroxysms or exacerbations than the early exhibition of quinia, bark, or other tonics.

The insidious *congestive fever* of Bengal is characterized by the slightness and obscurity of the symptoms at its commencement. The earliest symptoms are usually slight lassitude, weariness in the loins, transient pains in the joints, and inaptitude to continue any intellectual pursuit with the degree of vigour and satisfaction natural to the individual. There is some shortness of breath, increased secretion of urine, and unrefreshing sleep. The pulse and appetite are but little altered, but food is not relished as usual, and the patient is induced, by a sense of weariness to take an increased quantity of

wine. After from four to ten days some degree of dry heat of the skin is observed, the urine becomes scanty and high-coloured, the appetite for food nearly ceases, there is some thirst, and great increase of languor. The patient supposes he has a cold, and has recourse to some domestic treatment, by which, generally, his disease is increased. Business and amusement are still attended to, until the disease has progressed for many days. It is sometimes the end of the second week before medical aid is solicited. Even then no very distressing symptom is experienced. The pulse is soft, frequent, and weak; the wrist tremulous; the tongue nearly natural; there is anxiety, and a sense of weariness in every part of the body. A constant pain is experienced in the forehead, of which the patient may not complain unless particularly questioned. The nights are restless, and business can no longer be attended to. There is sometimes a weakness of the eyes, and a sense as if the eye were bruised when pressure is made upon the lids; the face is sometimes flushed, and the hands warm and dry; occasionally the extremities are rather cold, and the face has a livid or chlorotic aspect. The bowels up to this period are usually costive; when calls to stool are frequent, the discharges are extremely scanty. On examination, some fulness and tension will be discovered at the epigastrium and across the hypochondria.

If the case be neglected or improperly treated the febrile symptoms slowly increase, but usually very little alarm is excited until delirium occurs at night, and the obscure pyrexia is accompanied in the day by drowsiness and an approach to stupor. The eyes become red, the tongue foul, brown, and dry; the urine is high-coloured, and thirst is experienced when the patient is not in a state of stupor. Occasionally there is intense yellowness of the skin and eyes, and red-coloured urine, especially in cases attended with much oppression at the chest and hurried respiration. Sometimes a soreness of the whole body is complained of, and a morbid sensibility is experienced when we press over the glands and along the course of the absorbents. In these cases there is much febrile heat, evening exacerbations are common, and often a very fretful state of mind. A remarkable feature in this disease is the long-continued delirium, or a state of apparent insensibility to external objects, with picking at the bed-clothes, or a constant movement of the hands, as if in search of some imaginary object. Notwithstanding these symptoms, recovery will take place. Most protracted cases of this fever assume a remittent form by the eighth or ninth day.

Post mortem examinations, we are told, do not discover much change of structure different from that found after remittents. In a few rare instances, when patients have died after a protracted fever

of this sort, Mr. T. has found superficial ulceration of the mucous membrane of the small intestines.

"In the cure of this form of fever we have the same general objects in view," remarks the author, "as in the treatment of common continued fever, but we see less morbid arterial action to subdue, and until the disease is far advanced little apparent local affection to indicate a particular line of practice."

The remedies directed are bleeding, purging, occasionally an emetic, abstemious diet and rest, the tepid bath, leeches over the liver and to the head, and in some cases a blister to the abdomen.

"Blood-letting," the author informs us, "is a very essential part of the treatment. I do not remember," he states, "ever to have seen a patient that died who had been bled from the arm at an early period; though the subsequent treatment may have been so unskilfully conducted as to insure a prolonged disease, in the cure of which much difficulty was experienced."

The last section of the chapter on fevers contains a description of a strange affection of the mucous membrane of the nostrils, to which the natives of Bengal are liable, which want of space prevents us from noticing.

In concluding this review, it is unnecessary for us to express formally our favourable opinion of the work of Mr. T. The comments already made, and the very copious analysis of its contents we have presented to our readers indicate fully the importance we attach to the observations of the author on the diseases of which he treats. We have, it is true, found it necessary to express our dissent from some of his pathological views, and to deny the correctness of a few of his therapeutical directions. In so doing we believe that we are sustained by innumerable facts, and a series of personal observations, the result of many years experience in the treatment of morbid affections bearing a close analogy to those described in the volume before us.

We have already alluded to some defects in the style of our author. He appears in particular to have a strange aversion to the use of the articles *a* and *the*, which he omits in many instances, where the sense of the passage, to say nothing of common usage, requires the insertion of one or other of them. In the passages quoted in the present review the articles printed in Italics are wanting in the original. We protest against the use of *epigastre* and *hypochondre* adopted by the author for epigastrium and hypochondrium, as well as against the word *proclivity*, which he uses almost invariably instead of the proper technical term *predisposition*. With all its faults, however, the work contains a collection of valuable observations, from the careful study of which, the young practitioner in particular will derive much useful information in regard to the pathology and treatment of an interesting and important class of diseases.

D. F. C.

ART. XII. *Mortality of the Metropolis.—A Statistical View of the Number of Persons reported to have Died of each of more than One Hundred kinds of Diseases and Casualties within the Bills of Mortality in each of the Two Hundred and Four years, 1629–1831, &c. &c. &c.* By JOHN MARSHALL, Esq. 1 Vol. 4to. London, 1832.

The Population Returns of 1831, with a Statement of Progress in the Inquiry regarding the Occupation of Families and Persons, and the Duration of Life; an Historical and Descriptive Account of London, Westminster, and other parts of the Metropolis; a Comparative Account of the Population of Great Britain, in 1801, 1811, 1821, and 1831, &c. &c. &c. London, 1832.

Natural and Political Observations mentioned in a following Index, and made upon the Bills of Mortality. By JOHN GRAUNT, Citizen of London. With reference to the Government, Religion, Trade, Growth, Ayre, Diseases, and the several changes of the said city. London, 1662.

MEDICAL statistics, or as it is occasionally denominated *political arithmetic*, constitutes at the present time, an object of deep interest to the physiologist and philanthropist, as well as to the statesman. In England and in some of the countries of the European continent, many valuable publications affording information of a highly interesting and useful character, and presenting results of a remarkable and often of an unexpected nature, have been recently presented to the public; and to those who are conversant with the scientific and medical literature of this country, it need scarcely be stated that the subject has begun successfully to engage the attention of American writers. The progress made in this department of knowledge, and the zeal and success with which it is studied, should be to all a source of great satisfaction, for viewed in every light the science of medical statistics must be considered as of considerable importance, and as fully entitled to the attention it receives. As Dr. HAWKINS well remarks, it is the key to several sciences; opening in a manner the most convincing, simple and summary, their gradual progress, their actual condition, their relations to each other, the success which they have attained, or the deficiencies which remain to be supplied. Its application to the objects of government, Dr. H. adds, has created political economy; and there is reason to believe, that a careful cultivation of it in reference to the natural

history of man in health and disease, would materially assist the completion of a philosophy of medicine, by pointing out to the physicians of every part of the world the comparative merits of various modes of practice, the history of disease in different ages and countries, the increase and decrease of particular maladies, the tendency of certain situations, professions, and modes of life to protect or to expose; and by indicating, as the basis of prognosis, those extended tabular views of the duration and termination of diseases which are furnished at successive periods, by hospitals and civic registers.

Medical statistics is comparatively a new science, and constitutes, we believe, one of the many branches of useful knowledge, for the first idea of which we are indebted to England. This at least has been inferred from the circumstance, that although a few useful facts relative to mortality, births, &c. may be found scattered in the writings of the older medical and other authors of the continent, no individual appears to have taken up and investigated those subjects in a regular and systematic matter previous to the middle of the seventeenth century, when Capt. John Graunt, *citizen of London*, published the work whose title will be found among those prefixed to this article. “Capt. John Graunt, of London, has the honour, says Dr. Hawkins, of being the first writer who ever directed the attention of the world to the comparative births and deaths of different cities, years, seasons, sexes; to the comparative mortality of disease; to the proportion of births and deaths, and to the relation of the town to the country in these respects.” “He displays a singular genius for observations, in a field where no footstep can be traced before his own. He was really the creator of the new science of *statistics*.”

In this field of investigation, Graunt has been followed by SUSSMILCH, ODIER, HEBERDEN, BLANE, RICHMAN, FINLAYSON, VILLERME, QUETELET, CASPER, ORSINI, GORDINI, BALBI, DE SAGRAS, SEYBERT, EMERSON, STORER, and other writers in Europe and America who have furnished information of great value on different points connected with the subject in question.

But among the numerous publications which have appeared on the subject, there are few entitled to more respect, as well on account of the mass of valuable information it conveys, of the manner in which this is arranged, as of the localities to which it has reference, than the volume which stands at the head of our list. The author informs us, that his attention had long been directed to the extent and mortality of London, and that having been favoured by a friend con-

connected with one of the insurance offices, with a complete set of the bills of mortality, published annually for more than two hundred years, he was excited by curiosity in the first instance, rather than by any specific design, to ascertain what their investigation might lead to and develope.

Having gone through the whole period, he threw the details into a form, to enable him to see clearly what conclusion could be drawn from them. The manuscript was afterwards shown to some eminent medical practitioners who recommended its publication.

Presuming that some of our readers take an interest in investigations of this kind, and convinced ourselves of the high importance of the subject, we have drawn up an abstract of that part of Mr. Marshall's work which relates to the movement of the population of London and England, and to the causes of the mortality in the former. But with a view to render the article more complete and interesting, we have occasionally borrowed from Capt. Graunt's volume, and from the population returns of 1831—the preparation of which is assigned to Mr. Rickman the assistant-clerk of the house of commons; and have likewise compared, on several points, the results obtained in England, with those furnished by similar researches in France and other places.

From all we can learn on the subject, it appears that the first of the continued weekly bills of mortality extant at the Parish Clerk's Hall, began on the 29th of December, 1603, “being” as Mr. Graunt remarks, “the first year of King James his reign; since when a weekly accompt hath been kept there of burials and christenings.” It is true, that parish registers of marriages, christenings and burials originated in England in 1592, and were published in 1594, in consequence of the plague which existed the preceding year. But they were discontinued after the 18th December, 1597,—the plague having then ceased; for it seems probable, as Mr. G. surmises, that “the rise of keeping these accompts was taken from the plague.”

In 1603, when the publication of the uninterrupted series of bills commenced, the reports were received from only thirteen out parishes, in addition to ninety-six within the walls of the city of London—that of St. James's Duke's Place not being then included. From that period to 1629 other parishes were successively added, and in the latter year twenty-six parishes in addition to the ninety-seven within the walls, (St. James's Duke's Place being now included,) made weekly returns. Since then the number of out parishes included within the

bills of mortality, have been increased to fifty, embracing London without the walls, the borough of Southwark and the city and liberties of Westminster.

In the first bills, from 1603 to 1625, the aggregate weekly number of burials and christenings in the various parishes was reported. But neither in these reports nor in the annual bill was any thing said of the diseases occasioning the mortality, except of the plague,—the number of individuals who had fallen victims to this disease being separately stated. In the last mentioned year, 1625, the number of burials in each separate parish was for the first time mentioned; but it was only in 1629, that the reports of diseases and casualties, together with the distinction of the sex of those who had died, were first presented to the public.

“Such,” as Mr. Marshall remarks, “was the origin and progress of the account of the burials and diseases of that part of the metropolis within the bills of mortality from 1592 to 1629, since which date a copy of the returns has been sent weekly to the secretary of the home department of state, and the right honourable the lord mayor, and an annual account has been, and still continues to be published, and generally circulated by the several parish clerks, amongst their fellow parishioners, under the imposing title of ‘A general bill of all the christenings and burials within the city of London, and bills of mortality from December —, to December —, according to the reports made to the King’s most excellent Majesty, and to the Right Honorable the Lord Mayor, by the Worshipful Company of Parish Clerks.’ ”

Before proceeding further, it may be proper to offer a few words in relation to the officers to whom was, and is still, entrusted the preparation of the bills of mortality, and to the source whence they derive their information respecting the nature of the diseases, and casualties occasioning the deaths reported. These officers are denominated Parish Clerks, and constitute a company which was incorporated as far back as 1233, under the title of the *Fraternity of St. Nicholas*. In 1611 they were reïncorporated under the title of the *Worshipful Company of Parish Clerks*, and in 1625 their bills of mortality are stated to have acquired a general reputation. As regards the manner in which the knowledge on which the bills are founded, is obtained by those officers, or in other words the authority upon which the report of diseases is founded, Mr. Marshall truly remarks, that considering the country and city concerned in these reports, the exalted sanction under which they are made, and the public officers to whom they are presented, it would be natural to suppose that the office of reporting would be assigned to some of the most acute, discerning, enlightened and industrious members of the medical profession.

“But what will the distant inquirer say,” he adds, “when I inform him, as it is my duty to do, that the reports rest upon the authority of a parcel of elderly females, designated *old women*, by those who indulge in vulgar prejudices against the returns.”

These women are two in number in each parish, and are denominated *searchers*. They are appointed by the parish clerks, under the sanction of the parochial authorities.

“When any one dies,” says Capt. Graunt, “then either by tolling or ringing of a bell, or by bespeaking of a grave of the *sexton*, the same is known to the *searchers*, corresponding with the said *sexton*. The *searchers* hereupon repair to the place where the dead corpse lies, and by the view of the same, and by other inquiries, they examine by what disease or casualty the corpse died. Hereupon they make their report to the *parish clerk*.”

To our great surprise, Mr. Marshall entertains a favourable opinion of this mode of reporting, and of the class of individuals from which the *searchers* are selected. After stating the manner in which these reports are drawn, he asks what more could be done by the most skilful medical practitioner, except by the one who attended the person previous to demise. He cannot discover that there exist any rational motive for misrepresentation, except in a few cases, perhaps, of a desire on the part of the friends of the deceased to conceal the fact, when the death may have been occasioned or accelerated by indulgence in some vicious practice. But such cases, he thinks, supposing them to occur at all, will of late years, at all events, have been too few to affect the general interest of the bills.

“The *searchers* so called, he affirms, are personages, not perhaps possessing the first order of mental acquirement and discrimination; but possessing plain good sense, matronly deportment, and much practical experience in diseases, affording as fair a guarantee for exactitude in their reports as is likely to be obtained in any other manner, without consulting the medical practitioner by whom the disease was attended previous to the demise: a medical practitioner could probably report more *technically*, but not more intelligibly.”

The expression of this opinion is the more astonishing, as, according to Mr. Marshall’s statement, his own countrymen entertain a different one, and there prevails in the metropolis a general censure and disregard respecting the reports founded on the character of those from whom they are obtained. We cannot indeed conceive how an author of Mr. Marshall’s intelligence and information, can for a moment uphold such a plan of reporting. It is radically defective, whether we have regard to the manner in which the information required is obtained, or to the presumable character and acquirements of the individuals charged with collecting it. It would

be a matter of considerable difficulty for any class of persons, however well informed, to decide, from the inspection of a corpse, or from such other sources of information as the searchers can have access to, respecting the seat and character of the disease which has caused the demise of an individual whose remains they are called upon to inspect. Physicians themselves would often be sorely puzzled to arrive, from such data alone, at a satisfactory conclusion, and surely the difficulty must be infinitely greater to individuals of the female sex, who have not enjoyed the benefit of even the elementary portion of a professional education. They may possess, for all we know to the contrary, the good and matronly deportment Mr. M. concedes to them; but it will be not the less true, that as they pursue no regular studies, and are, from the nature of their duties, in constant attendance on the *dead*, not on the *sick*, they cannot be supposed to acquire much experience in disease. Owing to this circumstance, and to the sources of information within their reach affording but slender data from which to arrive at a decision, it is not unreasonable to presume that errors of a very gross character inevitably creep into their reports. But this objection to the searchers is principally founded upon the difficulties incident to the mode of reporting adopted. Others of a more serious kind may be found. Mr. Graunt, while maintaining, though for reasons very different from those assigned by Mr. Marshall, that the authority of the searchers is sufficiently good, and that it is of no importance whether the disease reported, be exactly the same as physicians “define it in their books,” provided the principal symptoms are given; Mr. Graunt, we say, recognised in the searchers of his times a great fund of ignorance, and even accused them of being open to bribery by those who wished to conceal the disease of which their friends had died. Now, we have reason for considering them as ignorant, and no more honest now than they were one hundred and fifty years ago, for Dr. Hawkins, in speaking of those of the present time, says they are dismissed with a gratuity, and are satisfied with the first answer given to them by the relatives of the deceased. Influenced by these circumstances, and entertaining different views from Mr. Graunt respecting the necessity of accuracy, we cannot help believing that much advantage would be obtained in England from a polite dismissal of all those ladies, and the adoption of a system different from that at present in force; such for instance as that adopted among us, or the one in operation in France, as they both appear to be far preferable in every respect to the one in question.

We cannot dismiss the subject of the searchers, without noticing in a brief manner an opinion expressed by Mr. Marshall, who, after speaking of those females, remarks that—

“It may serve in some degree to assuage English vanity to know that over the greater part of continental Europe, the duties of attendance during *parturition* are wholly performed by females, who enjoy a respect and distinction in society beyond that of the male practitioner in physic and surgery. Why then should the reports of diseases in London be impugned for being made by females?”

Now, in this extract we discover two points on which that gentleman appears to us to have erred materially. The first relates to the supposed higher standing, on the continent of Europe, of midwives than of the regular members of the medical profession, and the second to the equality which Mr. M. seems disposed to believe exists, on the score of character and acquirements, between those midwives and the old matrons of whom we have been speaking. We confess that this is the first time we have heard that midwives enjoyed in any part of the world the least degree of superiority as regards respect and distinction in society over medical or surgical practitioners; and we doubt whether any one, conversant with the state of the profession in Europe,—who knows from what class of society *accoucheuses* are derived, as well as the inferiority of their education compared with that of physicians whose professional studies must necessarily embrace a much wider range of subjects, and be preceded by classical instruction totally unlooked for in the others, will ever feel disposed to join in opinion with Mr. Marshall. But while maintaining this, we must be allowed to affirm, that between the continental midwives and the metropolitan searchers, no parallel can be drawn. The former are regularly educated on the various points connected with the branch of the art they are destined to practise. They go through several courses of lectures delivered by able professors; attend during a sufficient time to clinical instruction, and are not licensed to practise before giving evidence, in several examinations, of their possessing the necessary qualifications and instruction; while the searchers receive, as has been already stated, no theoretical or practical instruction, and are therefore unable to obtain their experience otherwise than by attendance on the *dead*.

Having disposed of this part of our subject, we proceed to lay before our readers some facts relative to the mortality of England and its immense metropolis, to the principal diseases by which this mortality has been, and continues to be caused, and to the variations manifested at different periods in respect to the prevalence of those

maladies. But in order to convey a more correct and satisfactory view of these several subjects, it will be necessary to present a statement of the population of the metropolis and of the whole country at various periods. On this head, the information contained in Mr. Graunt's work cannot, we fear, be safely relied upon; inasmuch, as his calculations do not appear to be founded upon official data. He informs us, that in his time, some of the good people of the city—of great experience too, had a very exalted opinion of the immense population of the metropolis, talking seldom “under millions of people to be in London,” all of which, Mr. Graunt confesses, he was apt to believe “until, on a certain day, one of reputation was upon occasion asserting, that there was in the year 1661, two millions of people more than *anno* 1625, before the great plague, which would have made the whole number then in London to be six or seven millions.” As this number appeared to the shrewed author to be extraordinarily large, he was induced to undertake a computation of the inhabitants. By comparing the number of deaths reported annually; the number of births, abortions, &c. he concluded that the eminent individual who had advanced the above opinion, had gone very far beyond the mark, and that in 1661, the population of London—of the ninety-seven parishes within the walls, and eighteen out parishes, did not amount to more than 384,000. But this estimate, low as it may seem in comparison to six millions, appears nevertheless to be too high, for Mr. Marshall states, that according to an enumeration, which seems to have been carefully made in 1631, the total population of the whole city of London, both within and without the walls, including four parishes in Surrey, (which, since 1750, have been included among out parishes,) making in all, independently of the parishes of the city proper, the same number of out parishes as mentioned by Mr. Graunt, amounted to 130,178;—a number, much too small to allow us to regard the estimate of Mr. G. as accurate, since the interval between the two periods was only thirty years, and the population could not, in so short a time, have trippled in extent. In another estimate in which are included the ninety-seven parishes within the walls, and thirty-three out parishes, Mr. Graunt supposes the number of inhabitants to have amounted to 460,000 in all. Here he appears to us to have erred on the other side, for in 1700, only thirty-nine years after the period mentioned by him, the out parishes alone, exclusive of those composing the city of London *within* and *without* the walls, and of Westminster, contained 326,000 souls, and the population of the whole of that part of the metropolis within the bills of mortality amounted to nearly 200,000 more than the number stated by him.

Be this, however, as it may, Mr. Marshall has furnished at page 12 of his admirable work, a statement showing the progressive increase of the population in each of the districts composing the metropolis at five different epochs from 1700 to 1821 inclusive. From this statement, it is found, that the population of that part of the metropolis situated within the bills of mortality, viz. 1st. The city of London within the walls, including ninety-seven parishes. 2d. The city of London without the walls, including seventeen. 3d. The city and liberties of Westminster, including ten. 4th. The out parishes within the bills, including twenty-nine parishes, amounted in 1700 to 665,200; in 1750, to 653,900; in 1801 to 777,000; in 1811 to 888,000; in 1821 to 1,050,500 inhabitants.

If to these numbers we add that of the inhabitants of the out parishes not within the bills, which amounted in the first period to 9,150; in the second to 22,350; in the third to 123,000; in the fourth to 162,000, and in the last to 224,300; together with, (in the three last periods,) the remainder of Middlesex within the range of the metropolitan police, and the other parishes in Surrey, some in Kent, and the Becontree Hundred Essex, all of which are, in like manner, within the same range, we shall find that the total population of the metropolis of the British Empire was as follows:—in 1700, 674,350; in 1750, 676,250; in 1801, 1,097,896; in 1811, 1,304,359; in 1821, 1,574,689.

In these statements are included the seamen, strangers, &c. daily arriving in London, and who in 1821 amounted to 47,210. It will be found from the documents furnished by Mr. Marshall and by Mr. Rickman in the *Population Returns*, that the number of inhabitants within the bills of mortality rather decreased than increased from 1700 to 1750; and that this effect was particularly striking from 1700 to 1811 in the part of London known under the appellation of the *City*. The number in 1700 was 139,300, while in 1750 it did not exceed 87,000, and in 1811 it was reduced to 57,700, beyond which it has hardly risen since. The same documents will show, that the increase has principally taken place in the out parishes, both within and without the bills; for in the former the population, which in 1700 did not exceed 326,900, amounted in 1811 to 730,700, while the number in the parishes without the bills increased in one hundred and twenty years from 9,150 to 224,300. In explanation of the first of these facts, it is mentioned that at the former period, four parishes in Surrey—St. George, St. Olaves, St. Saviours, and St. Thomas, which, in 1750, and subsequently thereto, were included

under the head of *out parishes within the bills of mortality*, were in all probability included in the city within the walls; that in 1811 and 1821, the precincts of White Friars, St. Botolph, &c. containing together 11,741 inhabitants, were placed without the walls, but were, as late as 1801 included in the city within the walls; that the Bank of England, the Mansion House, Blackfriars Bridge, the East India House, and other public buildings, which were all erected since 1700, occasioned considerable demolition; that there exists a progressive tendency of inclination on the part of the inhabitants of the city for country residence; and finally, that a large number of houses contiguous to public buildings have been transformed into counting-houses. As regards the second fact—the much greater increase in the population of the out parishes, it will be sufficient to remark, that many among these are located in those parts of the metropolis within the range of influence of the shipping business, which has more than doubled itself since 1810; while the others are the seat of a manufacturing industry, whose products are spread in every part of the world, and which necessarily attracts and tends to concentrate together a larger concourse of individuals than the city both within and without the walls, the commerce of which is limited to one of simple consumption.*

With respect to the population of London at a later period, Mr. Marshall furnishes us with no positive information,—his work having probably been prepared for publication too early in 1832, to enable him to make use of the official statements contained in the population returns laid before parliament the year before, and which were published about the same time as his own volume. He only presents us therefore with an estimate of the population of the metropolis for 1831, which somewhat exceeds that reported in the official documents, including, as it does, the probable number of seamen and strangers,—a class of individuals that appear to be excluded from the other enumeration. According to the latter, the whole fixed population of the metropolis in 1831, including that of the adjacent parishes not within

* At page 25 of the population returns of 1831, we find a statement of the population of London in 1801, 1811, 1821, and 1831. This statement in regard to the three first periods, differs somewhat from that given by Mr. Marshall, both as regards the aggregate population of the whole city, and the number in each district composing the latter—the numbers mentioned by Mr. M. being in each case larger than those mentioned in the “*Returns.*” But Mr. Marshall evidently includes in his enumerations the seamen, strangers, &c. while this is not the case in the official documents.

the bills, amounted to 1,474,069, and exclusive of these to 1,180,502. The distribution of this amount in the different districts, was as follows:—

London within the walls	57,695
London without the walls	67,878
Southwark, borough	91,501
Westminster city	202,080
Out parishes within the bills of mortality	761,348
Adjacent parishes not within the bills	293,565
Total	1,474,069

Mr. Rickman, the author of the returns from which the foregoing statement is borrowed, remarks, that objections may undoubtedly be made to the propriety of the limits of the metropolis herein assumed, and that it is, therefore, convenient to add, that the total population of all the parishes, that of Woolwick excepted, whose churches are situated within eight English miles rectilinear from St. Paul's Cathedral, amounted to 1,031,500 in 1801; to 1,220,200 in 1811; to 1,481,500 in 1821, and in 1831 to 1,776,556; a twenty-fifth part being added in each of these instances as a moderate allowance for seamen, soldiers, and transitory population.

As regards the population of the whole of England and Wales, we find that it amounted in 1781 to 7,953,000; in 1791 to 8,675,300; in 1801 to 8,872,982; in 1811 to 10,163,676; in 1821 to 11,978,875; and in 1831 to 13,894,574. Scotland in each of those ten year periods had a population, in 1781 of 1,470,000; in 1791 of 1,500,000; in 1801 of 1,599,068; in 1811 of 1,805,688; in 1821 of 2,093,456; in 1831 of 2,365,807. The population of the whole of Great Britain, including the army and navy, &c. which are omitted in the above statements, was in 1781, 9,673,000; in 1791, 10,165,000; in 1801, 10,942,646; in 1811, 12,609,864; in 1821, 14,391,631; and in 1831, 16,537,398.

Before passing to the subject of the relative proportion of the sexes, which is next to occupy our attention, it is necessary to remark, that the information possessed respecting births, as well as marriages and deaths, is only obtained from the parish registers, the origin of which dates from the establishment of the Church of England, and which are left entirely in the hands of the clergy of this church. Owing to this circumstance the dissenters keep no registers, or at least furnish no reports; and as others, particularly the poor, conceal as far as they can the births, marriages, and deaths which occur in their families, in order to avoid paying the tax levied on all records,

it results that the reports issued by the parish clerks, or otherwise obtained by government, are not as complete and accurate as might be desired. In this respect France has greatly the advantage over England, because there the duty of registering is exclusively confided to the civil authorities, to whom the various denominations of individuals are strictly enjoined to report all cases of births, marriages, and deaths occurring among them; and whose documents must in consequence be infinitely more complete than those that might be obtained from the registers of the catholic or other clergies. Hence in speaking of the births and deaths in England, some allowance must be made for the number of those which are not registered in the parishes, and which consequently are not reported to government. This imperfection, however, will readily be understood to affect the question of the full number of births, &c. and not of the relative proportion of the sexes, because in the amount unreported the latter must bear the same proportion to each other as would be found to be the case in an equal number reported. The following statements are, therefore, only founded on the returns obtained from the parish registers, and not on the real number of births, marriages, and deaths occurring in England. From these returns it will be found that in Great Britain male births exceed those of the female sex. Thus, in the ten years included between 1801 and 1811, the registered births in all England amounted to 2,730,965, and in those between 1811 and 1821, to 3,100,261. In the first period the excess of boys over girls was 51,984. In the second, 66,035. In each of these ten yearly periods the excess among the boys was constant in each separate county. In Wales during the first period there was a majority of 14,939 boys, and in the second period a majority of 5,992. Mr. Marshall presents a very full and complete table, showing the total number of marriages, baptisms, and burials in all England and Wales at each of nine ten yearly periods, from 1700 to 1780, and in each of the forty years, 1781 to 1820. From this table it will be perceived, that the boys at birth have invariably exceeded the females in each of the specified years. As may probably be known to our readers, this excess of male over female births, is not peculiar to England; for it is found to obtain all over the world. But though this is shown to be the case, the excess is not exactly the same every where. By a careful calculation of the births in England in 1801-11-21, it has been found that the proportion of boys to girls was as $104\frac{75}{100}$ to 100. In France, from 1770 to 1774, inclusive, the proportion was $106\frac{76}{100}$ boys to 100 females, and from 1817 to 1827, inclusive, as $106\frac{55}{100}$ to 100. From 1817 to 1829, they were as 16 to 15. In Sweden the propor-

tion of male to female births, was, from 1775 to 1794 as $103\frac{5.2}{100}$ to 100; and from 1816 to 1825, as $104\frac{6.2}{100}$ to 100. In Wurtemberg the boys have on several occasions exceeded the girls by 7 per cent.; and in Russia, the excess from 1812 to 1829, amounted to $8\frac{9.1}{100}$ per cent. From these facts, and others that could be easily mentioned, it follows, that with the exception of Sweden, England presents the smallest excess of male over female births.

As we find in the works before us no account of the proportion of the sexes among illegitimate children, it is impossible to ascertain whether in England the excess of males over females is more limited in that class than among the legitimates, as is found to be the case in every part of the continent of Europe.

As regards London in particular, it will be found, on examining Mr. Marshall's tables, that in the various periods we have mentioned, from 1700 to 1820, the excess of births among males has also been strong, though not as constantly so in each separate year, as we have seen it to be the case in the country generally. In the forty-nine years specified separately, the female births presented an excess sixteen times; and in the twenty years, from 1801 to 1821, the excess of male over female births, in the four divisions of the metropolis within the bills and in the out parishes, not within the latter, amounted to little more than 2,600. During a period of 136 years, 1656—1776, and 1786—1810, the male births in London exceeded the female by $6\frac{1.8}{100}$ per cent.

In this respect London had then the advantage over Paris. Since that period, however, it appears to have lost it, for during the twelve years, 1819–29, the male births at Paris exceeded the female by $3\frac{5.9}{100}$ per cent.; and in 1828 the former were to the latter as 24 to 23; while the proportion in London in the twenty years we have mentioned, was as about 99 to 98. In Philadelphia, the excess of males within the ten years, 1821–1830, was greater than in either of those two cities—varying in each of those years from 3.6 to 10.5 per cent. and giving an average of more than 7 per cent.

The next point to be ascertained is the proportion of the sexes at all periods of life. According to Mr. Graunt, the number of males, in his time, was one-thirteenth part larger than that of females in London, and one-fourteenth part in the country. This information is interesting, as it affords an example of the change that has taken place on the subject in question since the middle of the seventeenth century; it being a fact placed beyond the possibility of doubt, that for many years past the number of females in London, and England generally, has exceeded considerably that of males. In the year 1811, the females in

London amounted to 690,683, while the males did not exceed 586,444. In the year 1821, the number of females in all the districts within the bills of mortality, exceeded that of males by 56,240; while in the entire metropolis on a population of 1,574,689, the number of females exceeded that of males by 103,879. With respect to the proportion in 1831, we find in the Population Returns of that year, that in all the districts within the bills of mortality, and in the adjacent parishes not within those bills, on a population of 1,474,069, the females amounted to 789,628, and the males to 684,441. The same returns not only show, that in all the large cities of England, Wales, and Scotland, the females exceed the males in number, but that a like result obtains throughout Great Britain generally. In 1801, the excess of females in England and Wales amounted to 382,754; in 1821, it amounted to 416,098; and in 1831, on a population of 16,537,398, including the army and navy lists, the number of females amounted to 8,375,780, and that of males to 8,161,618. From this statement it will immediately be seen, that though the female population throughout the whole country is larger than the male, the proportion of the sexes is not the same in the country generally as it is in the city of London taken separately; the number of males being proportionally larger, and the majority of females consequently smaller in the former than in the latter. Thus, in 1811, the majority of the females in London was a little more than one-twelfth; while in the entire country it was only a little more than one thirty-fourth part of the whole population. In 1831 the excess in London was one-fourteenth, and that in the whole country only one seventy-seventh part of the population; the proportion being for London, 100 females to 86.7 males; and for the whole country, 100 females to 97.44 males. The fact becomes still more striking if we examine the relative proportion of the sexes in the whole country exclusive of the population of London, for while the majority of females in that city rose, in 1831, to one-fourteenth of the population, the majority in the rest of Great Britain constituted the one hundred and eightieth part of the population. Taking each portion of Great Britain separately, we find that the excess of females in England constitutes a little more than one thirty-eighth part; in Wales a little more than one forty-seventh part; and in Scotland, between a seventeenth and eighteenth part of the population. This excess of females though found to obtain in Belgium, Sweden, does not do so in all other countries. In France the male population at present exceeds the female. Our readers are probably aware that in this country taken in the aggregate the same circumstance occurs—whether we have refer-

ence to the black or white portions of the people; and we have the authority of HUMBOLDT for the fact, that it also occurs in Mexico. But while such is the truth in reference to the proportion of the sexes in the whole country, it will be found that in the large cities of France, of this country, of Mexico, and other places, the females exceed the males very nearly in the same ratio as they do in London. But it is not only found, that females exceed males in number in Great Britain, but that they are gaining ground; a circumstance directly opposed to what takes place in France. In the latter country, during a period of thirteen years, 1817-29, the total increase of the population amounted to $\frac{1}{167}$ annually. To this increase the males contributed at the rate of $\frac{1}{297}$, and the females at the rate of $\frac{1}{387}$. In Great Britain, on the contrary, the annual rate of increase during a period of thirty years, 1801-31, as shown by the returns of those periods, was $\frac{1}{88.74}$. To this the males contributed $\frac{1}{182.92}$, and the females, $\frac{1}{172.06}$. In other words, the females in 1831 were to the females in 1801, as 152.5 to 100; and the males in the same periods, as 149.75 to 100. If we make our calculation on the increase of the population, as shown by the difference between the registered births and deaths in England and Wales, we find, that in a period of ten years, 1811-20, the males contributed $\frac{1}{183.404}$, and the females, $\frac{1}{172.164}$; results differing but little from those we have just mentioned. In the same period the annual increase was one sixty-sixth instead of one eighty-ninth; the difference being accounted for by the emigration into England from Ireland and elsewhere, and by the unreported births.

To what we have said in reference to the proportion of the sexes, it may be added, that although the females exceed the males in England, they do not do so at all periods of life; for between birth and the age of thirty, and between forty and fifty, the males exceed the females. Nor is this irregularity in the proportion observed only in England. It is found to take place in France, and in other parts of Europe. In the United States white males exceed the females of the same colour throughout the country; but the contrary is found to be the case among white individuals between fifteen and twenty and seventy and one hundred; as well as among the slaves between the age of twenty-four and thirty-six.

It may be interesting to offer a few remarks on the subject of the relative number of individuals of each sex, at various periods of life, in England. Taking the whole country in the aggregate, it is found, that in every 20,000 inhabitants, there are under the age of five years, 2,982; between five and ten, 3,611; between twenty and thirty, 3,154; between thirty and forty, 2,365; between forty and fifty, 1,873; and between

fifty and sixty, 1,318. On comparing this statement with the results obtained in France, we find, that the number of individuals between twenty and thirty are nearly equal in both countries. Among those between thirty and forty, forty and fifty, and fifty and sixty, France furnishes a larger number. The same may indeed be said of individuals between sixty and eighty; but beyond that age the advantage is decidedly in favour of England.

As regards the comparative number of individuals at various periods of life in London and Paris, we find that in 10,000 in each of those cities, London presents a larger number between birth and the age of fifteen, as well as between twenty and forty, and above one hundred; but that the number of individuals between the ages of fifteen and twenty, and forty and one hundred, is more considerable in Paris than in the former.*

By comparing these facts with Mr. Graunt's statement to which we have referred, it will be perceived, that supposing the latter to be correct, things have greatly changed since the middle of the seventeenth century. While contending for the greater number of males than females, not only in London, but in the country at large, Mr. G. remarks, that the proportion of the sexes may be reversed in some places without affecting the result in the country generally. This is found to be the case in Great Britain at the present time; for though an examination of Mr. Marshall's tables, and of the Population Re-

* The following table will show the probable number of individuals in Great Britain engaged in and dependent on various branches of occupations, in the year 1831:—

Agricultural occupiers	-	-	-	-	-	-	1,500,000
Agricultural labourers	-	-	-	-	-	-	4,800,000
Mining labourers	-	-	-	-	-	-	600,000
Millers, bakers, butchers	-	-	-	-	-	-	900,000
Artificers, builders, &c.	-	-	-	-	-	-	650,000
Manufacturers	-	-	-	-	-	-	2,400,000
Tailors, shoemakers, and hatters	-	-	-	-	-	-	1,080,000
Shopkeepers	-	-	-	-	-	-	2,100,000
Seamen and soldiers	-	-	-	-	-	-	831,000
Clerical, legal and medical	-	-	-	-	-	-	450,000
Disabled paupers	-	-	-	-	-	-	110,000
Proprietors, annuitants	-	-	-	-	-	-	1,116,398
Total	-	-	-	-	-	-	16,537,398

A comparison of the probable proportions in 1821 and 1831, shows that while the labourers tend progressively to increase, the number of agricultural employers remains stationary.

turns before us, show that for a considerable time back, the females have exceeded the males in the separate countries, yet a few exceptions to this rule are met with. In the year 1811, the counties of Stafford and Cambridge contained a few more males than females. The same circumstance was noticed in the year 1831, in seven counties of England, two of Wales, and one of Scotland. A reference to the Population Returns will also show, that in the year 1831, out of six hundred and forty-seven towns, cities or hundreds in England, two hundred and twenty-four presented an excess of males over females; and that out of one hundred places of the same description in Wales, and thirty-seven in Scotland, there were twenty-five in the former, and two in the latter in which a similar result obtained.

An examination of the facts already stated, and a reference to the *Returns*, will show that the population of London increased during the ten years 1801–11, 17 per cent. from 1811 to 1821, 21 per cent. and from the latter year to 1831, 20 per cent.; but that the various districts experienced fluctuations in the movements of their population at the several periods we have mentioned. Thus in the first period, London within the walls decreased thirty-five per cent, and London without the walls twenty-five per cent. In the second period they increased but slightly; the former at the rate of one per cent. and the other of six per cent. The increase of the borough of Southwark in those periods was 7, 19, 7 per cent. That of Westminster, 2, 12 and 11 per cent.—of the parishes within the bills 37, 24, 23 per cent. and of the adjacent parishes not within the bills, 32, 38 and 36 per cent.

The population of England experienced an increase, from 1801 to 1811, of $14\frac{1}{2}$ per cent. from 1811 to 1821 an increase of $17\frac{7}{8}$ per cent. and from 1821 to 1831 one of 16 per cent. The increase of Wales in the same period was 13, $17\frac{1}{4}$ and 12 per cent. and that of Scotland 14, 16 and 13 per cent. and finally, that of the whole of Great Britain $15\frac{1}{4}$, 14, 15 per cent.* The increase of the metropolis from the beginning of the last century to 1831, was 222 per cent. while that of the population of the whole of England within the same period was 154 per cent. that of Wales 117 per cent. that of Scotland 87 per cent. and finally that of the whole of Great Britain 144 per cent.†

* In the same periods the increase of the female sex, (by adverting to which a more accurate knowledge of the increase of population may be obtained, as we thereby virtually omit throughout the calculation, such of the army, navy, and merchant seamen as are not in Great Britain,) was 14.15; 15.71; 15.45 per cent.

† The ratio of increase in each county taken separately, is found to have differed very materially. In Lancaster from 1700 to 1831, it amounted to 800

Captain Graunt enters into a long and curious calculation with a view of ascertaining not only the probable population of London in his time; but also the number of years that that population would require to double itself “by the ordinary proportion of breeding and dying.” The results to which he arrives are, that the breeders whose numbers he estimated at 24,000 pairs, would require eight years to double themselves in plague seasons, and seven years in ordinary times.

“Wherefore since there be 24,000 pair of breeders, that is one-eighth of the whole, it follows that in eight times eight years, the whole people of the city shall double without the access of foreigners.”

Elsewhere he makes out the accession with the aid of foreigners, (by which name he understands people from the country,) to be from two to five in fifty-six years. We suspect, however, that the worthy gentleman was far from the truth on this point; because, judging from the increase which took place from 1631 to 1700, and from 1750 to 1801 the doubling of the population would have required in the first period about one hundred and fifteen years, and in the second about one hundred and fifty-one years. On the other hand, basing our calculation upon the progress of increase during the last thirty years throughout the entire metropolis, we find that the doubling of the population would require only between forty-two and forty-three years. As regards the doubling in the whole of Great Britain, it will be found on basing our calculation upon the increase that has taken place during the period above mentioned, that the time required will be $54\frac{11}{100}$ years. In England and Wales alone 53 years, and in Scotland $62\frac{3}{4}$ years. The females alone double their number in a little more than fifty-seven years.

It is a fact, the truth of which must be recognised by every one per cent.; in York West Riding 417; while in Rutland it was only 17, and in Northampton, 50. The ratio of increase in the manufacturing and mining districts in the three ten year periods 1801–31, was $18\frac{1}{4}$, $20\frac{1}{4}$, $22\frac{1}{4}$, and from 1700 to 1831, 295 per cent. In the agricultural counties $9\frac{1}{2}$, $15\frac{1}{4}$ and $10\frac{2}{3}$, and from 1700 to 1831, 84 per cent. In the metropolitan counties $16\frac{1}{4}$, $18\frac{1}{8}$, $15\frac{1}{4}$, and from 1700 to 1831, 147 per cent. The above statement as Mr. Marshall very properly remarks, shows the change that has taken place in the relative importance of the English counties since 1700, in a more perspicuous point of view than any in which it has heretofore been exhibited; the increase is seen to predominate greatly in the manufacturing and mining districts, while the statement of the population of the principal towns of England and Wales, shows that the increase of the agricultural counties is principally in the towns; so that the rural population of England, as in the agriculturing counties of Scotland, appears not materially, if at all, to have increased since 1700.

who has paid some attention to medical statistics, that the movement of population is every where greatly modified by wide-spreading maladies, independently of the differences arising from the increased mortality occasioned by the prevailing disease. This modification is observed whether the malady giving rise to the excess of mortality, be endemic or of frequent occurrence; or whether its visitations occur at long intervals. The modification to which we allude, arises principally from the greater rapidity with which the population is renewed in places usually unhealthy and everywhere subsequently to times of unusual mortality. The first is observed, for example, in marshy districts, where although the number of deaths proportionally to the population may be greater than in other situations, and the mean duration of life shorter, the population does not, as it might have been anticipated to do, diminish;—marriages taking place earlier in life, and the number of births being thereby as well as by a smaller number of checks, and perhaps a greater procreative force, considerably increased in a given extent of territory and proportionally to the number of inhabitants. Belgium offers us many facts in corroboration of this statement, for wherever in that country the mortality proves larger, the number of births will also be found to be greater. So often indeed has this been observed, that by many writers on political economy it has been regarded in the light of an axiom.

Whenever also an epidemic disease of a severe and highly fatal character prevails and carries off a great number of inhabitants, or whenever a country has suffered from scarcity of food, or from the scourge of war, the mortality thus occasioned, is succeeded, almost immediately after, by an extraordinarily large number of marriages and births. To such a degree, does this sometimes occur, that many couples who, though cohabiting together, had long ceased to have children, reacquire the procreative faculty. Finally, severe and fatal epidemics are generally succeeded by periods of uncommon healthfulness, when the proportion of mortality to births diminishes considerably. Whether the causes of this circumstance are to be sought for in the fact, that the distemper has carried off the declining and worn out constitutions, and that the previous mortality has afforded more room and a greater plenty of food to the survivors, thereby promoting, as Dr. Short and Mr. Malthus have conjectured, a meliorated condition of the lower classes of the population; or whether finally, it is in some measure the result of the afflux of people from other parts, are so many points we shall not undertake to discuss at present. All we need insist upon here is, that whatever be

its real cause, the fact to which we allude has been verified over and over again, and is attested by the most undoubted authorities. It was noticed in Holland and Belgium in the years 1815-16-17-18-20, as well as in some of the French departments, after the invasions of the allies in 1814-15, and after the great scarcity which occurred in 1817; and every one who has read Malthus, must recollect the statement quoted by that author from Susmilch, which shows the movement of the population of Prussia and Lithuania before, during and after the great plague which ravaged those countries in 1709-10, and establishes the fact in question in the most satisfactory manner.* An equally striking example of it is furnished by the history of the plague at Marseilles in the year 1720; for although it is shown, by the records of all the parishes, that the mortality on that occasion was very considerable,—amounting to nearly 40,000, the population of that city was as large five years after as it had been previous to the commencement of the pestilence.

Nor is it less certain that the various circumstances we have here mentioned, are confirmed by facts observed in England. On inquiry, it will be found that in those countries where the number of deaths is proportionally large, the number of births is so also to a remarkable degree. A similar result has been observed in London, as the following statement from Mr. Graunt's work, which is fully borne out by a series of tables contained in Mr. Marshall's volume, will show.

“The next observations we shall offer, is the time wherein the city hath been *repeopled* after a great plague, which we affirm to be by the second year. For in 1627, the christenings, (which are our standard in this case,) were 8,408, which in 1624 next preceding the plague year, 1625, (that had swept away above 54,000,) were but 8,299, and the christenings of 1626, (which were but 6,701,) amounted in one year to the said 8,408. Now, the cause hereof, for as much as it cannot be a supply by procreations; *ergo* it must be by new affluxes to *London* out of the country. We might fortify this assertion by showing that before the *plague* year, 1603, the christenings were about 6,000, which were in that very year reduced to 4,789, but crept up the next year, 1604, to 5,458; recovering their former ordinary proportions in 1605, of 6,504, about which proportion it stood till the year 1610.”

* During the years 1709-10, when the plague occurred in Prussia and Lithuania, the mortality amounted to 198,693. This reduced the population to 322,267. But notwithstanding this very great diminution in the number of inhabitants, the marriages in the next year were nearly double their average number during the six years preceding. In the year previous to the plague, the number of marriages was 6,082—that of births 26,896. In 1711, the former amounted to 12,028, and the births 32,522. The marriages were therefore in the ratio of one twenty-sixth, and the births of one-tenth of the remainder of the population.

Graunt here attributes, perhaps, more influence to the afflux of people from the country, and less to the augmentation in the number of marriages and procreative power than others would do, considering as he did, that a given number of births supposes always a fixed proportional number of inhabitants. But whether he be right or not in his conjectures, the facts he states in relation to the city of London, show that the latter affords the confirmation of the circumstances alluded to: for either one or the other of two things must be admitted to have occurred—that a reduced population produced a comparatively larger number of births, or that the city was, as Mr. Graunt affirms, repeopled by emigrations in a very short space of time. The same result will be found to have obtained in England at a much later period. Mr. M. furnishes at page 27, a statement of the number of baptisms and burials in every county of England and Wales in each of the seven years, 1798–1804, a period considered as one of the most remarkable in the history of Great Britain, when the whole world either openly or insidiously were in array against it. Nevertheless, after the first effects of the war had subsided, England presented an unprecedented increase of population—the excess of baptisms over burials in 1798, considerably exceeding the like excess in any former year. After the peace of Amiens, the same effect was produced, and the general peace in 1815 was also followed by an unprecedented excess of baptisms.

The population of London increases in great measure by emigrations from the country and from foreign parts. This will be immediately seen by a reference to the statements furnished by Mr. Marshall. They show that from the year 1604 to the present century, the number of christenings, which furnish the only clue to a knowledge of the number of births in the metropolis and throughout England, was almost always below that of burials, sometimes to the amount of 7, and even 8,000. In a very few instances only were they equal to the latter, and in still fewer superior. It is very clear, therefore, that the increase of the population must have entirely depended, during that time, on the afflux of people from the country or elsewhere. From 1802 to 1830, the proportion of the christenings to deaths has, with the exception of one year, been constantly the reverse of what it was prior to that period; the excess of births over burials being in some years as great as 6,000, (the whole number being 30,000, and that of deaths 24,000.) Yet, notwithstanding this change, the excess of births since 1802, will not serve to account alone for the increase of the population, because between 1801 and 1821, the excess amounted

to about 72,000, while the augmentation in the number of inhabitants was about 375,000. Nor is it less certain, that the population of England and Wales generally, also increases in another way than by the excess of births over burials. One of the tables contained in Mr. M.'s work shows, that from 1700 to 1820, the increase in the whole country amounted to 6,744,200. From 1780 to 1820, the excess of births over deaths amounted to 3,456,489. Now, the increase of population from 1700 to 1780, amounted to 2,356,552. These two sums—the excess of births from 1780 to 1820, and the increase from 1700 to 1780, added together, give 5,813,041. By deducting this last sum from the total increase of the population, 6,744,200, we have a balance left of 931,267, which, supposing no omissions to have been made in the returns, constitutes the increase of population beyond the excess of births, and is necessarily the result of emigrations from Ireland and other parts.

But these tables are not only interesting to us from their establishing the fact, that the population of London and of England generally, increases by emigration from without, but also from pointing out other facts relating to the proportional number of births to burials in different parts of the country, and which we shall have occasion to notice in the course of this article.

In England and Wales the average number of marriages, (basing our calculation upon the returns of twenty years, 1801–21,) amounts to 87,076 annually, and in England alone to 82,424. The average number in each of the ten years, ending with 1790, was 67,253.5; in each year from that period to 1800, 72,258.3; to 1810, 83,209.1; to 1820, 91,042.6. In the ten years from 1801 to 1811, the proportion of marriages to every 100 of the population of England and Wales, was 9.4. In England alone, 9.47. From 1811 to 1821, the proportion in both countries combined was 7.67; in England alone, 9.06. In each of the ten years from 1790 to 1800, the number in 1,000 of the population of England and Wales was 81; in each of those from 1800 to 1810, 82; and from 1810 to 1820, 76. Finally, in the *Returns* of 1831, we find a table exhibiting the proportion of marriages to the population in a different and more simple manner. From this table we learn, that in the five years from 1796 to 1800, there took place in England one marriage in every 123; from 1806 to 1810, one in every 122; from 1816 to 1820, one in every 127, and from 1826 to 1830, one in every 129 of the population of those respective periods. But while such was the proportion in all England, it varied considerably in some of the counties taken separately. In the ten years ending with 1800, the proportion to every thousand of the population was in *Middlesex*,

106; in *Hereford*, 58. In the ten years ending with 1810, Middlesex presented a proportion, to the same number of the population, of 106; Hereford of 61; and from 1810 to 1820, Middlesex gave 96; Hereford 57, and Flint in Wales 55. The same county in the various periods we have mentioned gave different results, Middlesex presenting 106, 106, 96; Lancaster 83, 92, 81; York West Riding 74, 95, 80; Glamorgan, (Wales,) 56, 82, 64. Both these facts will be further illustrated by the following statement, extracted from the tables already quoted from the Population Returns of 1831.

1796—1800.	1806—10.	1816—20.	1826—30.
Bedford - - - - 1 in 113	131	124	129
Bucks - - - - - 148	144	140	149
Cambridge - - - - 118	130	117	124
Hereford - - - - - 183	144	171	149
Middlesex - - - - - 95	94	101	102
Rutland - - - - - 131	161	142	138
Surrey - - - - - 134	129	139	129

On comparing these proportions with those observed in France and the Netherlands, it will be perceived that the number of marriages in England is greater than in those two countries; for from the official documents before us, we find that in France the average number in each of the years, 1817–29, amounted to one in 132.4 of the population, and that the same proportion obtains at present in the Netherlands. In the department of the Seine, however, the proportion agreeably to the statements published in 1827, amounted to one in 109; but in the department of La Manche, it did not exceed one in 198. In Paris, the number in 1820 was one in 123, and in 1827, one in 131, while in London in 1820, the proportion, according to the parish registers, was one in about 100.

The number of baptisms in all England and Wales in each of the four ten yearly periods ending with 1790, 1800, 1810, 1820, amounted to 2,324,298; 2,538,434; 3,027,526; 3,585,727, giving an average in each year of the first period of 232,449.8, of the second period of 253,843.4; of the third period of 302,752.5, and of the fourth of 358,572.7. The ratio to every 100 marriages in each of the ten years ending with 1790, 1800, 1810, and 1820, was 348, 351, 363, 380. The ratio to a marriage in the ten years, 1801–10, was 3.63; in the ten years, 1811–20, 3.8.

Finally, the proportion of registered baptisms to the population in England was in the five years 1796—1800, one in thirty-six; 1806—1810, one in thirty-four; 1816—20, one in thirty-five; and 1826—1830,

one in thirty-seven. The proportion of baptisms in the different counties of England and Wales, like that of marriages, differed very considerably in the various periods we have mentioned. In the ten years ending in 1790, the ratio in Berks was 422 to every 100 marriages; that in Hertford, 427; Denbigh, (W.) 428; Montgomery, (W.) 429; while in Middlesex, where the proportion of marriages was greatest, the ratio was only 255; and in Carmarthen, (W.) 271. In the next period ending with 1800, the ratio in Middlesex was still lower than it had been in the preceding, being only 244; while that in Montgomery, (W.) was 449; and that in Flint 500. In the third period ending with 1810, the ratio in Middlesex was 238; and those in Flint 490; Rutland 457; and Hertford 478. In the fourth period ending with 1820, the ratio in Middlesex was 280; in Hertford 519; and in Flint 560. The ratio is found to have increased in some counties at each successive period; though in some cases the reverse occurred.

The ratio of births to the population in the separate counties as well as the diversity of the proportion in each of these, and the frequent examples of progressive improvement in the number of births in the same county, is exemplified in a table contained in the *Population Returns*, from which we offer a short extract.

1796—1800.	1806—1810.	1816—1820.	1826—1830.
Middlesex - - - - 1 in 39	40	41	40
Lincoln - - - - - 32	31	31	31
Berks - - - - - 33	33	33	33
Kent - - - - - 30	29	31	34
Monmouth - - - - - 56	50	53	59
Northumberland - - - 47	43	41	41

These proportions are not as considerable as they are found to be in the Netherlands, in France, or in Sweden. In the first of these countries the proportion from 1814 to 1824 was one in 28.5 individuals; in France it amounted from 1817—29 inclusive to one in 32.1; and in Sweden in 1820 to one in 30.8. The proportions varied in the different parts of France and Netherlands. In the department of Loire, in the first of these counties, it amounted to one in $25\frac{2}{3}$ in the department of Calvados to one in $43\frac{1}{6}$; while in the Netherlands the open country gave one in 29.14; and the cities one in 26.04. As regards the proportion of births to marriages, it will be found that the Netherlands presented in the ten years, 1815–24, an average of 4.66 for every marriage. Belgium alone one of 4.72; and France from 1817 to 1829 one of 4.105, if we take into consideration the whole number of births; or one of 3.815 if we have regard to legitimate children

only. But we have already stated, that the number of births in England and Wales exceeds that reported, and on which the above calculations are apparently based.

In London the average number of births in each of the years included between 1801 to 1811, amounted to 22,156; and in each of the years from 1811 to 1821 to 28,490;—the largest number in the first period being 25,426; and the smallest 23,358; the largest in the second period 30,422; and the smallest 26,274. In the year 1700, the number was 16,585; in 1750, 17,080; and in 1800, 21,776. By comparing these sums with the amount of the population existing at those different periods, in the five divisions of the metropolis from which they are reported, we find, that the ratio of births in London in 1700, was one in 40.66; in 1750, one in 38.9; in 1801, one in 41.39; in 1811, one in 39.96; and in 1821, one in 41.64; and that in 1820, the proportion to marriages was as 2.38 to one. These numbers are inferior to those obtained in Paris or Philadelphia; for in the former of these cities the proportion is generally one to 31.5; and in the latter one to 22.6 of the whole population; while in 1828, the proportion to every marriage at Paris was 4.06. We cannot, however, be surprised at the difference which is here presented, inasmuch as the number of births reported in London is probably greatly inferior to that which really occurs.

We now proceed to speak of the mortality of England and Wales, and of that of London. It can hardly be necessary to premise, that in our investigations relatively to the usual mortality of a whole country or of a city, and in our endeavours to form an estimate of the degree of their healthfulness, it is necessary to base our calculations on the results obtained during ordinary years; for every one must be aware, that epidemic diseases, or even endemics when they prevail with unusual severity, augment often very materially the number of deaths and that, if we selected those years as points of comparison, we should necessarily arrive at very erroneous conclusions. Nor should we select the years immediately succeeding the periods of unusual mortality; because experience has shown, as we have already had occasion to remark, that the latter are generally followed by season of great comparative healthfulness. England and its immense metropolis, have experienced several visitations from pestilential diseases, which served to swell the number of deaths, on some occasions, to an awful degree, and Mr. Graunt cites several years, and others of the same kind have occurred since his time, which proved very sickly, and presented a mortality of much larger extent than usual, although there did not prevail a regular epidemic disease to account for that

effect. In order therefore to avoid the erroneous conclusions arising from the selection of such sickly seasons, we shall establish our calculations on a series of years during which no disease of unusual malignancy prevailed, and state the average mortality they presented.

The total number of burials in England and Wales, in each of ten yearly periods, from 1790 to 1820, were as follows; 1790, 1,822,902; 1800, 1,889,574; 1810, 2,053,749; 1820, 2,105,023. This gives an average for each year of the first period of 182,290; for each of the second of 188,957; for each of the third of 205,374; and for each of the fourth of 210,502. In the first the highest number was, (1780,) 191,736; and the lowest, (1781,) 178,718. In the second the highest was, (1794,) 203,328; and the lowest, (1791,) 180,453. In the third period the highest was, (1810,) 208,184; the lowest, (1804,) 181,177. In the fourth the highest was, (1818,) 213,624; the lowest, (1813,) 186,477.

These sums on examination will be found to give the following ratio of burials to every hundred marriages in each of the ten years ending as above, 1790, 271; 1800, 261; 1810, 246; 1820, 227; or to each marriage 2.71; 2.61; 2.46; 2.27. The ratio to births in the first period was as 78.42 to 100; in the second as 74.43 to 100; in the third as 67.83 to 100; and in the fourth as only 58.73 to the same number.

If now we compare the proportion of mortality to the whole population of England and Wales, we shall find, that in the year 1700, there died one individual in every $41\frac{1}{2}$. In 1750, 1 in 42.11. In each of the ten years ending with 1800, the average ratio was 1 in every 45.9. In each of the ten years ending with 1811, 1 in 49.49, and in each of the ten ending with 1821, 1 in 56.9. As regards England alone, we find, that from 1796 to 1800, the average number was 1 in 48 annually; from 1806–10, 1 in 51; from 1816–20, 1 in 57; and from 1826, 1 in 54.

These statements taken in conjunction with those that precede, will lead to the most gratifying conclusions, and deserve in a very high degree the attention equally of the statesman, physiologist and moralist of all countries; for they show that while the proportion of baptisms to marriages has progressively increased during the forty years ending with 1820, the proportion of burials to marriages, to births and to population, has diminished progressively and considerably.

The progressive decrease of mortality has manifested itself not only in England generally, but in almost all the counties taken separately, Dorset, Hereford, Oxford, Wilts, York East Riding being the

only exceptions during the four quinquennial periods selected by Mr. Rickman in the tables of the population returns.

As may readily be presumed, the ratio of burials to marriages differs considerably in the various counties, and has done so in the same county at various periods. In the ten years ending with 1790, the counties presenting the smallest ratios were Pembroke and Cardigan, both of which are in Wales; the former giving 205 burials to every 100 marriages, and the other 211. The highest ratios were in Clamorgan, (Wales,) and Surrey;—the former giving 410, and the other 347 to 100.

In the ten years ending with 1800, Flint gave a ratio of 205; Carmarthen of 205; and Cornwall, (England,) 225; while Surrey gave one of 329.

In the ten years ending with 1810, the county of Cardigan, (W.) gave 189; Anglesea, (W.) 191; Gloucester 198; and Hereford 299.

Finally in the ten years ending with 1820, Anglesea gave 175; Pembroke 190; Gloucester 181; Hereford 324; and Flint 300.

As regards the proportion of mortality to the population of each county, it is totally out of our power, interesting as the subject might be to those who are engaged in statistical pursuits, to enlarge much upon it on the present occasion. We shall, therefore, content ourselves with stating the proportions obtained at four quinquennial periods, in a few of the more prominent counties.

1796—1800.	1806—10.	1816—20.	1826—30.
Dorset - - - - - 1 in 62	56	64	58
Middlesex - - - - - 37	46	51	45
Kent - - - - - 41	38	51	49
Monmouth - - - - - 72	70	72	83
Wilts - - - - - 60	58	64	57
Surrey - - - - - 42	46	51	50

From this it will be seen that in the first of those periods the highest proportional mortality was in Middlesex, the lowest in Monmouth. In the second period Kent presented the highest, and Monmouth the lowest. In the third period Kent gave again the highest, Monmouth the lowest. Finally in the fourth period, Middlesex once more gave the highest mortality, and Monmouth the lowest.

On comparing the above statements with the bills of mortality and other documents relative to the movement of the population in France, the Netherlands, &c. we shall find, that in having regard only to registered burials, England has the advantage over either of those countries. Thus in France the proportion from 1817 to 1829 was not

less than 1 in 39.7. In 1781, it was 1 in 29.2; and in 1802, 1 in 30.1. In the Netherlands each of the ten years 1815, 24 presented an average mortality of 1 in 39.86—varying from 1 in 36.32, (1817,) to 1 in 43.93, (1824.) In general the average number in that country is 1 in 42. In Belgium alone it is 1 in 43; and in Sweden 1 in 41.07, (1820.)

The mortality in the different provinces of Belgium varied from 1 in 39, (West Flanders,) to 1 in 56, (Namur.) In France also the proportion varied in the ten years 1817–27 from 1 in $27\frac{3}{5}$, (Finistère,) to 1 in 53.5, (Haute Pyrénées.) Thirteen rich provinces in five years presented an average of 1 in 46.31; while in 14 of the poorest departments the average was 1 in 33.72.

In France the proportion of births to deaths in the twelve years 1817–29 was 1.24 to 1. According to calculations founded on the census of 1827, it appears that there occurred in France 1,000 births to 798.48 deaths; the proportion varying in the different departments from 1027.60 deaths to 1,000 births, (Finistère,) to 656.38 deaths to 1,000 births, (Sarthe.)

With regard to the mortality of London, Mr. Marshall's tables show that the absolute numbers of deaths have not varied very considerably from 1780 to the present day. Nevertheless the variations they do present, taken in conjunction with the very remarkable increase of population in the metropolis, prove that the proportional mortality has greatly diminished. This will be rendered apparent by the following statement. The average annual mortality of London within the bills, from 1780 to 1790, was 23,080; from 1790 to 1800, 26,508; from 1800 to 1810, 19,927; from 1810 to 1820, 23,331; and from 1820 to 1830, 21,909. The average of those five periods taken conjointly is 22,950, or one thousand more than the full amount of the last period taken singly.

The proportion of the mortality to the population in 1631, was 1 in 21; in 1700, it was 1 in 34.26; in 1750, one in 27.56.* The proportion between 1790 and 1800, calculated on the population as returned in 1801, was 1 in 29.35; between 1800 and 1810, calculated on the population of 1811, 1 in 44.56; between 1810 and 1820, 1 in 45.02; and finally, between 1820 and 1830, 1 in 55.81. In 1831 the mortality was 25,337, or 1 in 48.27.

Our readers will immediately perceive the difference of the rates of

* These proportions are calculated on the mortality reported by Marshall in his general tables at the end of the volume. At page 63 he gives a different return of deaths in 1700 and 1750; and at page iv, calculates on the last numbers. Hence he finds that in the first of these years the mortality was 1 in 33, and in the second, 1 in 26.

mortality in England generally, and in London in particular, and the smaller proportion of deaths in the whole country considered in the aggregate, and the counties taken separately. Some of the tables contained in the works before us, tend in some degree to establish this fact in another way; for they show, that at the very periods when the mortality exceeded the births in London—from 1700 to 1801, many of the counties, Lancashire and the West Riding in Yorkshire, for example, presented seldom, if ever, a similar result; the baptisms generally exceeding the burials.

We have already, in an early part of this article, stated the relative proportion of burials to births in London. Our statements then had reference to the metropolis generally—both within and without the walls. The bearing of the subject on the one which at present occupies our attention, will be a sufficient excuse for recurring to it again, with the view to point out the influence of locality on the mortality of the different districts of which London is composed. It is natural to presume, that in all large cities there are some portions which prove more sickly than the rest, and where consequently the mortality is more considerable. Places of the sort constitute, as it were, small communities, embracing various kinds of localities, and containing individuals placed under circumstances of the most opposite character. In Paris, for example, Mr. Villermé has found, that the mortality in the private houses of the first arrondissement, amounted to 1 in $58\frac{24}{100}$, while in those of the twelfth, it arose to 1 in 42.63; the first arrondissement representing the richer, and the twelfth the poorer portions of the city. Including the deaths occurring in the hospitals, and which take place principally among individuals sent from the poorer districts, the mortality in the first arrondissement amounted to 1 in 41.20; while in the twelfth it rose as high as 1 in 24.81. Facts of a similar import may be stated in reference to Philadelphia, where the mortality among the blacks, who inhabit the worst parts of the city, was found by Dr. Emerson, to amount to 1 in 21.7; while that among the white population did not exceed 1 in 42.3.

As may be expected, London does not differ in that respect from other large cities. In all the years between 1700 and 1802, the burials presented a greater excess, comparatively with the population, over baptisms in those districts within the bills where the houses are more compactly built; and from 1802 to 1820, the excess of baptisms over burials, which, as we have seen, obtained in the whole metropolis, was proportionally less considerable than in the other parts. Thus, we find, that in 1760, the excess of burials over baptisms within the bills of mortality, was 4,879; while in the whole metropolis, it was

only 4,845. In 1770, within the bills, it was 5,325, and in the whole metropolis, 5,159. The excess of mortality over baptisms, though often large in the city proper, was particularly and sometimes extraordinarily so in the out parishes within and those without the bills; while in the city and liberties of Westminster, though more constantly observed, it was usually comparatively small. It is a fact worthy of notice in this place, that from a table exhibiting the burials, baptisms, &c. in each of nine years, from 1700 to 1780, and in each of the forty years, from 1781 to 1820, the number of baptisms is found to have exceeded that of burials twenty-four times in that part of the metropolis within the walls; and that on twelve of these occasions, which occurred previous to 1802, the burials exceeded the baptism in all the parishes within the bills. A similar excess of baptisms occurred thirty-nine times during the period above-mentioned in that part of the city situated without the walls. On eighteen of these occasions the burials exceeded the baptisms in all the districts of the metropolis taken collectively—this difference arising from the very considerable excess of burials in the out parishes within and without the bills, where, until the year 1802, the baptisms very rarely predominated over the burials. The different degrees of healthfulness of the various districts of the metropolis, as well as their progressive improvement in that respect, might be satisfactorily established by comparing the proportion of deaths to the population in each of them at various periods. But this we cannot undertake to do, owing to the impossibility of ascertaining the population of each district in different years; as well as to the time and space the investigation would require, even if we had the necessary materials at our command.

It would no doubt also be an object of some interest to ascertain the different rates of mortality at various periods in the separate parishes comprised within the bills. Mr. Marshall's work offers a part of the materials for such an inquiry. But in order to derive full advantage from the latter, it would be necessary to place in apposition to the statement of deaths in each parish, an account of the nature of the localities, of the character, occupation, and mode of life of the inhabitants, and of other circumstances, relatively to which information is not of easy access in this country.

The above calculations in respect to the mortality of London, as well as of England and Wales generally, have been based on the numbers obtained from the parish registers. But from the causes to which we have already alluded, it will be evident, that the comparative, but not the absolute mortality, in various years in that country, can be relied upon; since a large number of deaths are not reported, and consequently not noticed in those registers. In the whole of

England and Wales it is computed, that in the ten years, 1801–11, there were 103,560, and in the ten years, 1811–21, 95,030 unentered deaths. These of course would increase the proportional numbers far above those we have mentioned; presenting 1 in 43.20 between 1801–11, and 1 in 48.28 between 1811–20. As regards London in particular, it is supposed that about 8,000 burials are thus deficient. These added to 25,337 reported in 1831, would give 33,337, or 1 in 36.7, instead of 1 in 48.27, as stated above. These facts will lead us to the conclusion, that in expressing the opinion, that the mortality of Great Britain, its cities, and its hospitals, is *greatly* inferior to that of any other country in Europe, and that Great Britain is at present the most healthy country with which we are acquainted, Dr. HAWKINS has somewhat exaggerated the superiority of his country. For if the number of unregistered burials throughout England and Wales be taken into consideration, the superiority of these countries over France will not be found sufficiently great to justify so decided a boast on the subject. If we compare the average mortality of London as stated above, with that of other cities of Europe, or of this country, we shall also find, that although the comparison will give satisfactory results, the superiority is far from being such as to authorize the assertion made by the same writer that the most favoured spots in Europe, the places which have long been selected as the resort of invalids, and the fountains of health, are more fatal to life than even the great metropolis. In Belgium it is not more than 1 in 36.9, while in Paris the average proportion in the five years, 1817–21, amounted to 1 in 32.43; and from 1821 to 1826, to 1 in 36.44. But if the cities we have mentioned do not present a greater number of deaths than London, our own city, Philadelphia, was greatly superior to it in point of healthfulness in the twelve years, 1807–20; for the average mortality in that period, according to Dr. Emerson, was 1 in 47.8—the proportion varying from 1 in 38.25 (1820) to 1 in 56.53 (1815.) It is proper to remark, however, that from 1820 to 1830, the advantage was less decided; for during that period the mortality varied from 1 in 30.58 to 1 in 42.94, which gives an average of 1 in 38.85. But this period, it should be recollected, was one of unusual sickness over the whole country, and cannot, therefore, afford correct criteria for judging of the ordinary proportions of the mortality in this city, or in other parts of the United States.

It would be difficult at the present time, and in this country especially, to ascertain with accuracy whether the number of sick in England and London is greater among individuals of one sex than among those of the other, though we may presume, from what we observe here, that physicians are more employed among females.

With respect to mortality, however, we are furnished by Mr. Marshall with documents showing the difference of the proportion in the two sexes. In nine ten-yearly-periods, from 1700 to 1780, and in forty consecutive years, 1781—1820, the mortality among females in all England and Wales, exceeded that among males nineteen times, and that among males exceeded that among females thirty times. From 1802 to 1821, a larger mortality among males occurred in every year but one, (1819,) the excess amounting from 1801 to 1821, to little short of 26,000, or 1,300 every year. As during the whole of that period the female population exceeded the male, this fact alone will show plainly that the mortality among the latter is much greater comparatively than among the former, and consequently that the value of life in England, &c. is in favour of females. On examination, it will be found, that the proportion of deaths was as 72 among the males, to 71 among the females, while the average proportion of the sexes in 1801 and 1811, was as 12 females to 11 males, and in 1831 as 38 females to 37 males. Independently of this it may be remarked, that the proportion of deaths among females to the whole number of that sex in each of the years, 1801—11, was 1 in 54.62, while the proportion at the same time among males, was 1 in 49.66. In London, in particular, it is found, judging from the average mortality in each of the ten years, 1810—20, and the population of 1821, that the proportion of deaths among males is 1 in 49, and that among females 1 in 57.21. These facts relative to the greater value of life among females are fully corroborated by the results of calculations made by Mr. FINLAISON the Actuary of the national debt, who found that except under the age of 12, and above 85, extreme periods, at which, perhaps, no distinction of mortality is apparent, there is at every other period a remarkable and decided advantage in favour of the female.

The same difference of mortality among the sexes is observed in France entire, where the average from 1817 to 1829, was 55 male to $53.\frac{998}{1000}$ female deaths. In Paris, on the contrary, the mortality among females is in the proportion of 53 of that sex to 47 males in every 100 deaths. The number of deaths among males in Philadelphia is also greater than among females,—the proportion being in a period of sixteen years, 77 females to 100 males.

If we have regard to the proportion of the mortality to the births among the two sexes, we shall find that in France there occur 1000 births to 781.93 deaths among individuals of the male sex, or 4 births to 3 deaths,—the proportion varying in the various departments from 1017.21 deaths to 1000 births, (Finistère,) to 612.26 to 1000, (Creuse.) Among the females there occur, in France entire, 816.12 deaths to 1000

births, the proportion varying from 1037.93 to 1000, (Finistère,) to 643.24 to 1000, (Hautes Pyrenées.) This is equal to 6 births to 5 deaths for the whole country. Taking an equal number of male births, of births of both sexes indiscriminately, and of female births, the respective mortality among these three classes will be found to bear to each other the same relation as the numbers 46, 47, 48.

As regards the city of London alone, we find that in a period of 103 years, from 1728 to 1830, inclusive, the mortality among females exceeded that among males forty times only. Since 1800, the excess of deaths among females has only occurred once, (1816,)—the proportion from 1801 to 1821 being as 29 males to 28 females, while we have seen that the female population in 1811 was to the male as 7 to 6, and in 1821 as 8 to 7.

Mr. Marshall has furnished at pp. 70, 71, two interesting tables, showing the number of deaths within the bills of mortality in each of thirteen gradations of ages in each of the 103 years, 1728—1830. These tables, as Mr. M. himself remarks, bespeak a very marked change in the physical condition of the metropolitan population since 1740. The number that died under two years of age in the ten years, 1740–9, was as 34 to 29 in the ten years, 1820–9, while of those from 2 to 29, the number that died in the latter ten years, exceeds the number in the former by 1 in 17. From 20 to 50 the numbers in 1740–9, were as 29 to 25 in 1820–9; and of those fifty years of age and upwards, the number in the ten years, 1740–9, was as 28 to 22 in the ten years, 1820–9.*

* The following statement will show the number of deaths at each of the thirteen gradations in London during the year 1828, as well as the number during the same year at Paris; the latter being added for the purpose of comparison.

	LONDON.	Proportion to population.	PARIS.	Proportion to population.
Under 2 years	6389	1 in 183.51	6392	1 in 137.73
From 2 to 5	2326	504.06	1789	500
5 10	878	1335.36	962	925.6
10 20	861	1361.3	1151	773.50
20 30	1488	788.	2613	340.75
30 40	1790	655	946	941.2
40 50	1985	590.65	1781	500.
50 60	1845	635.4	1831	476.3
60 70	1891	620.01	2466	361.07
70 80	1540	761.33	2410	369.
80 90	615	1906.42	815	1091.21
90 100	100	11724.50	67	13289.55
100 and upwards	1	1172450.00		

This calculation is made on the known population of Paris in 1827, and on

In a series of tables placed at the end of his work, Mr. Marshall has presented a statement of the number of deaths within the bills of mortality under various heads of diseases and casualties in each of the 204 years, 1629—1831. This space he divides into four periods. The first includes all the time between the years 1629–89; the second extends from 1690 to 1739; the third from 1740 to 1789, and the fourth from 1790 to 1831. These tables are highly interesting, as showing the degree of prevalence of certain diseases, the diminished frequency or the extinction of some, and the appearance or increased fatality of others in the course of the four periods mentioned.

The already considerable length of this article will force us to be rather brief on the subject of the contents of those tables, and to limit ourselves to stating a few facts relative to some of the principal diseases. The first column in each table has reference to the number of deaths in child-bed. From these tables it will be found, that the mortality arising from this cause has greatly diminished, for they show that the annual average of deaths in the puerperal state was 234 during the first period, and 201 during the last, although the number of births was nearly as two in the latter period to one in the former. This is certainly highly creditable to the resources of the obstetrical art. Abortion and still-born appear to have remained more uniform, the annual number varying from about 350 to 900, but not increasing progressively each year from the first to the latter of these sums. In 1629, the number was 499; in 1649, 327; in 1685, 759, in 1800, 492; and in 1831, 898. In only one year, (1828,) did it exceed 1000. If we have regard to the great increase of the population of London in each of the four periods, it will become evident, that although the average mortality from the above-mentioned cause does not differ now very materially from what it was formerly, the population has nevertheless decreased considerably.

“The first and second periods exhibit a column headed *Chrisomes and Infants*. Chrisom is a Greek word, signifying an ointment, used apparently to supple or soften the first garment or cloth of infants at their birth: its use in the first instance probably emanated in kindness, and was afterwards converted into a superstitious practice by the priests of both the Greek and Romish churches. The custom appears to have been, to use the anointed, or Chrisom cloth for one month from the birth of the child, and if the child died within that month, it was stated to have died in *Chrisome*. This ridiculous custom, it will be seen, gradually decreased in the metropolis of England from 1629 to 1726, when it

the estimated population of London in the same year. It is not, therefore, given as correct, but only as approximative. But such as it is, it will serve to show, that except between the ages of 30 and 40, and 90 and 100, the chances of life are greater in London at any of the gradations we have mentioned, than in the French metropolis.

became quite extinct. As the number of deaths reported in *Chrisome* decreased, those under the head Convulsions will be seen to have increased, the cause of death in both cases probably having been the same."

The number reported under the head of *Chrisome* in 1629 was 2,596.

The number of children cut off by *teething* did not amount to more than 500 annually until 1646, when it suddenly increased very considerably. The average from this period to 1752, was about 1,500 annually. Since then it has gradually diminished; to such an extent, indeed, that from the year 1781 to the present time, the average number has not exceeded three or four hundred annually; while the births within the bills of mortality have in the same period increased from about 19,000 to upwards of 25,000. Rickets, as it appears from Mr. Marshall's tables, and as we learn from Graunt's work, was not reported until 1634, when fourteen deaths are mentioned as having taken place from it. From this circumstance Graunt concluded that it was then a new disease. But be this fact, which if true would be an interesting one, as it may, the disease prevailed very extensively from 1647 to 1715; there being from 150 to more than 500 deaths from it alone every year. From the latter period it gradually but constantly declined, so that the average number from 1750 to 1790 did not exceed five. Since that period the disease has become totally extinct.

Convulsions increased very considerably from 1632 to 1710; the numbers varying in that period from 221 to 5,987. It is to be remarked, however, that many cases of death mentioned in the earlier part of the same period as having occurred in *Chrisome*, ought probably to have been referred to convulsions. From 1710 to 1772 the disease continued to be extremely fatal; the number of deaths from it being seldom less than 6,000, and often higher than 8,000. From 1772 to the present period, the mortality from convulsions has gradually diminished; the annual number of deaths reported being now less than 3,000.

After noticing, in his introductory chapter, the gradual diminution of the above-mentioned diseases, a fact which is justly considered as honourable to the assiduity and integrity of the members of the medical profession, Mr. Marshall remarks, that there are some indications of nature seeming determined to cross the purposes of the latter in despite of all their assiduity; *croup*, *cough*, and *dropsy in the brain*, indicating a determination, since 1790, to fill up the void of mortality which the diminution under the other heads seemed disposed to occasion. *Cough* and *hooping cough* are not returned in

the two first periods. From 1740, when the number of deaths from this disease was 280, to 1831, the mortality from it has greatly increased. The number in 1803 was 1004, and in 1831, 1,738. In the intervening years it varied from 326 to 864. *Croup* was not reported till 1793, when there were twelve fatal cases of the disease. From that period the number has increased very considerably, being, in 1830, 126, and in 1831, 119. In the three first periods, from 1629 to 1790, *dropsy in the brain* is reported under the heads of headmoldshot, horse-shoe head, and water in the head. Mr. M. thinks, that prior to 1790 the disease may have been confounded with convulsions. From the first year to 1715, the average number did not exceed twenty-five annually. From that year to 1752, the number rose to 150. After that year the deaths gradually diminished to 50 annually; but in 1790 they once more began to increase, and have ever since continued to do so to an alarming extent; the number ranging during the last few years at little less than 800 per annum.

If now we take a general survey of the mortality from all the diseases incident to infancy, we shall find that the number of deaths in each of the years included within the first period, 1629—1690, varied from 2,715 to 7,280, the number gradually increasing in the course of that time. In the second period, 1690—1739, it varied from 5,556 to 12,611. In third period, 1740—1790, it varied from 5,579 to 11,556, the number gradually decreasing. In the fourth period, 1790—1831, the mortality varied from 5,057 to 7,144—the latter number occurring in 1831, and those in the other years differing little from the first of the last-mentioned sums. Having regard, therefore, to the difference of the population in the districts within the bills during the four mentioned periods, and to its immense augmentation during the last, we cannot but be sensible of the fact, that the mortality from diseases incident to infancy has considerably diminished.

In the first period the deaths from consumption varied from 1,731 to 4,808 annually. In the second, from 2,520 to 4,601. In the third period, from 3,411 to 5,721; and in the fourth, from 3,432 to 5,732. But the reports of this disease are blended, from 1690 to 1700, and from 1729 to 1739 with asthma and *tissick*, so as to leave us very much embarrassed in our inferences. The uniformity of the mortality from that disease for the last hundred years, is certainly surprising. But the report must be looked upon as favourable rather than otherwise, seeing, that during the period in question, the population of the metropolis has more than doubled itself. It is possible, that during the first period a number of deaths occurring from different diseases were classed, through ignorance or design, under the head of

consumption, and that in this way the reported mortality from that disease was considerably swelled. This, indeed, we are inclined to believe, from a comparison of that mortality with the one occasioned by all the diseases combined, and with the population of London at the time, as well as from the statement of Graunt, who affirms the fact in the most positive manner. Prior to 1690 *asthma* is not specified. Since that period the number of deaths from that disease has varied from 1 to 1,150. But in the instances in which the number is found to be so considerable, the disease is blended, in the reports, with *tissick*, which, from 1702 to 1729, is mentioned in a separate column, the numbers in which vary from 241 to 511.

The number of deaths reported as having resulted from *French pox* differed considerably in the four periods. In the first it varied from 7 to 114—the average annual number being 29.65. In the second it varied from 29 to 159, with an average of 41.02. In the third period, from 32 to 162, with an average of 85.4; and in the fourth, from 1 to 86, with an average number of 20.8. Viewing the great increase of the population in the fourth period, the decrease of mortality from the disease is remarkable and highly gratifying. From the injudicious mode of treating syphilis in the seventeenth century, we might be led to experience surprise at the small number of deaths reported in the first and second periods, compared with those reported in the third, were we not informed that during the first, at least, many deaths occasioned by the malady were reported under other heads. On this subject Graunt expresses himself in very positive terms.

“ We finde one casualty in our bills, of which, though there be daily talk, there is little effect, much like our abhorrence of *toads* and *snakes*, as most poisonous creatures, whereas few men dare say upon their own knowledge, they ever found harm by either; and this *casualty* is the *French pox*, gotten for the most part, not so much by the intemperate use of venery, (which rather causes the *gowt*,) as of many common women. I say, the bills of *mortality* would take off these bars, which keep some men within bounds as to these extravagancies: for in the afore-mentioned 229,250, we find not above 392 to have died of the *pox*. Now, forasmuch as it is not good to let the world be lulled into a security, and belief of impunity by our bills, which we intend shall not be onely as *death's-heads* to put men in minde of their *mortality*, but also as *mercurial statues* to point out the most dangerous ways, that lead us into it, and misery. We shall therefore shew, that the *pox* is not as the *toads* and *snakes* afore-mentioned, but of a quite contrary nature, together with the reasons, why it appears otherwise. Forasmuch as by the ordinary discourse of the world it seems a great part of men have, at one time, or other, had some species of this disease, I wondering why so few died of it, especially because I could not take that to be so harmless, whereof so many complained very fiercely; upon inquiry I found

that those who died of it out of the hospitals, (especially that of *King's Land*, and the *Lock* in *Southwark*,) were returned of *ulcers* and *sores*. And in brief found, that all mentioned to die of the *French pox* were returned by the *clerks* of *Saint Giles's*, and *Saint Martin's in the Fields* onely; in which place I understood that most of the vilest, and most miserable houses of uncleanness were; from whence I concluded, that only *hated* persons, and such, whose very *noses* were eaten of, were reported by the *searchers* to have died of this too frequent *maladie*."

From 1629 to 1710 the small-pox and measles appear to have been as remarkable for their variableness as some other diseases for their uniformity. Subsequent to the introduction of inoculation the small-pox became far more general and confirmed in its virulence—occasioning an increased rate of mortality, which continued up to the period of the introduction of vaccination. Since that time the disease has gradually abated. In the first period, 1629–89, the highest mortality from the disease was 2,507. On twenty-four occasions it exceeded 1,000, and on four, 2,000. In the second period, 1690—1739, the number of deaths varied from 196 to 3,271. On forty-one occasions, it exceeded 1,000; and in eleven of these it rose beyond 2,000, and on five beyond 3,000. In the third period, 1740–89, the number fell short of 1,000 only four times; on seventeen occasions it exceeded 2,000, and on seven 3,000. Finally, in the fourth period, 1790—1831, the mortality varied from 421 to 3,548, (1796.) On twenty occasions only did it exceed 1,000. From the year 1800 it has fallen short of that number nineteen times; the average being now from five to six hundred annually.

It is a fact which seems in a very high degree to deserve attention; that the measles, which continued exceedingly variable and moderate down to 1800, except on particular years, have become, since that date, greatly increased and confirmed in virulence. In the year 1801 the mortality from that disease was 136; in 1808, 1,386; in 1816, 1,106; in 1831, 750:—the average number in the thirty years, being 662.50.

Ague and fever were reported together from 1629 to 1701; and separately from the latter period to 1780. Spotted fever, which, in the first period, was mentioned separately, was reported together with purples from 1690 to 1700. After that period these diseases are once more mentioned separately. From 1729 to 1730 they are again reported together as well as with *fever*; ague being now placed in a distinct column. In the third period, 1740–89, no mention is made of spotted fever or purples, and in the fourth, ague is not spoken of separately. From this circumstance, we must either infer, that some of the diseases we have mentioned disappeared from London, or that

they have all been lately confounded together under the generic name of *fevers*. From 1629 to 1689 this form of disease seems to have been exceedingly variable in respect to frequency. From that period to 1750 it became more uniform and general; but from that year to the present time it seems gradually to have declined. In 1750 there were 4,292 deaths from that disease. In 1800 the number had diminished to 2,713, and in 1831 it was reduced to 965. The average annual number in the ten years, from 1750 to 1760, was 2,781; from 1760 to 1770, it was 3,514; from 1770 to 1780, 2,678; from 1780 to 1790, 2,473; from 1790 to 1800, 1,935; from 1800 to 1810, 1,777; from 1810 to 1820, 1,072; from 1820 to 1831, inclusive, 916.

Inflammations, on the other hand, have increased in a greater ratio than fevers have declined. In the second period the number varied from 1 to 62. In the third period, from 35 to 308; and in the fourth, from 142 to 2,399. Pleurisy, which is reported separately, varied in its fatality; in the first period, from 9 to 45; in the second, from 6 to 77; in the third, from 9 to 70; and in the fourth, from 3 to 37. It is presumable, however, that many cases of deaths from pleurisy are reported under the head of inflammation, inasmuch as it is difficult to suppose that in so populous a city as London, so few deaths should be occasioned by a disease which carries off annually about 40 individuals in New York, and upwards of 200 at Paris. In speaking of the mortality from inflammation and fevers, Mr. Marshall remarks, that supposing the distinctions to have been properly made in the reports, the decrease of fever and increase of inflammations, are features of peculiar interest, and may be regarded as additional evidence of the inscrutable working of nature and its every varying yet uniform process. For our parts, without wishing to deny that *inflammations* have increased, and that the fevers of nosological writers have diminished in frequency, we are inclined to believe, judging from the change we know to have occurred in the views of physicians in this and other countries respecting the relationship of those diseases, that the practitioners, and even the *searchers* of London, have experienced a similar change in their sentiments, and that at present, and for some years back, many cases of serous and mucous inflammations are, and have been, reported under their true name, which would formerly have served to swell the list of deaths from *fevers*.

Dropsy appears to have progressively increased from 1629 to 1750. In the first of those years, the number of deaths from that malady amounted to 235. In 1689 it attained to 971; in 1740, 1,219; and in 1750, 1,051. Subsequent to this date, the disease seems to have somewhat abated until 1810, since when it has once more manifested a

tendency to increase. In the latter year, the deaths reported were 778, and in 1831, they were returned, after a gradual increase during the intermediate period at 1,108. Considering, however, the difference between the population of 1750 and that of 1831, we cannot help being struck with the decreased prevalence of the disease. In the former, the deaths from it were 1 in 622.17 of the population, and 1 in 23 of the total mortality of that year; while in the latter it was 1 in 1104.7 of the population, and 1 in 23 of the total mortality.

In the first period the deaths from palsy varied from 10 to 31, and those from apoplexy from 17 to 138, the increase being progressive. In the second period the deaths from palsy varied from 14 to 46—those from apoplexy from 71 to 243. In the third period the number from palsy was from 41 to 105, and from apoplexy from 178 to 276. Finally, in the fourth period palsy gave a mortality of from 62 to 246, and apoplexy one varying from 187 to 555. From this it will be perceived, that apoplexy and palsy are becoming gradually more prevalent, particularly since the commencement of the last of the four periods. It is proper to remark, that in many of the years comprised in those periods, apoplexy and *suddenly*, which were confounded together for a considerable time, are reported separately. But it is probable that, at least the majority of the deaths classed under the head of *suddenly*, were occasioned by apoplexy, because sudden deaths from accidents are mentioned in a separate column. For this reason we have not considered them separately.

In the first period, 1629–89, which includes several of the years during which the plague prevailed with most virulence in London, the disease is mentioned thirty-seven times, from 1630 to 1679, inclusive. From the tables now under consideration, it will be found that in the first of those years there were 1,317 deaths from that pestilence; in 1636, 10,400; in 1647, 3,597; in 1665, 68,596, and in the following year, 1,998. The total number of burials in those years was 10,554; 23,359; 14,059; 97,304, and 12,738. In all the other years mentioned, with the exception of 1631, when the deaths from plague amounted to 274, and 1648, when they exceeded 600, the mortality was trifling. The disease has not been returned since the year 1679, under the name of *plague*; but Mr. Marshall reports in his second table, down to 1740, a number of deaths under the head of stopping of the stomach, rising of the lights, surfeit, looseness, vomiting, and twisting of the guts, which diseases, according to him, appear to partake of the character of the plague or pest of 1665, or of the cholera of 1831–2.

The following table, which we have prepared from several exten-

sive ones contained in Mr. Marshall's work, will show the number of deaths from the plague in several visitations of the disease prior to the years already mentioned, together with the total number of burials.

			Total burials.				Deaths from plague.
1593	-	-	25,886*	-	-	-	11,503
1603	-	-	42,042†	-	-	-	36,269
1606	-	-	7,920	-	-	-	2,124
1607	-	-	8,022	-	-	-	2,352
1608	-	-	9,020	-	-	-	2,262
1609	-	-	11,785	-	-	-	4,240
1610	-	-	9,289	-	-	-	1,803
1625	-	-	54,265	-	-	-	35,417

During the intervening years, and until 1630, the disease prevailed to a greater or less extent, the deaths varying from 3 to 896.‡

It is proper to remark in concluding this statement of the mortality occasioned in London by the plague, that considerable as it certainly often was between the years 1592 and 1667, it appears, from the reports of historians, to have been much greater during the fourteenth century—the limited extent of the population at that time being taken into consideration. Between July 1348, and September 1349, upwards of 50,000 persons are stated to have been cut off by the disease in the metropolis.§ During the same season, 7,000 died at Yarmouth,

* Mr. Graunt gives these as the numbers for 1592, and states that the mortality in 1593, was 17,846, and the deaths from the plague 10,662. Mr. Marshall makes no mention of the plague of 1592.

† Another account makes the number 37,294, and from plague, 30,561. Mr. Marshall places no reliance on either statements; but Mr. Graunt adopts the latter without, however, assigning his reasons.

‡ The seventeenth century appears to have been a period of pestilential desolation all over the world. From 1618 to 1655, several places on the continent of Europe were ravaged by the disease; in 1656, Naples lost 300,000 of its inhabitants; in 1657, Geneva 70,000; in 1632, Amsterdam 24,148. See Marshall, p. 66, for further details on the subject.

§ As regards the mortality from this disease in London, considerable difficulty is experienced in arriving at the truth. Some historians state the number of deaths to have been 57,354. But Mr. Marshall thinks that this number must be regarded as indicating the mortality of Norwich, and not of London. According to Rapin, above 50,000 persons are stated to have been buried in a churchyard belonging to the Cistercians; but Mr. Johnes, the annotator of Sir John Froissart's Chronicles, states that the number buried there, amounted to 200 daily; and Holinshed, who was probably Mr. Johnes' authority, states that besides great number of bodies buried in other places, there were interred from *Candlemasse till Easter*, in the said churchyard, 200 dead corpses daily. "Now, in no year could Candlemasse till Easter embrace a period of more than eighty

above 57,000 at Norwich, and a considerable number in various other parts of England, Wales, and Scotland. This century, like the seventeenth, was one of great desolation throughout the world; for according to an official report to Pope Clement, 23,840,000 persons are stated to have died within the pale of the See in one year, (1347.) In England it entirely disappeared before the end of August, 1349, and the mortality in other parts, subsequent to 1350, “was probably occasioned as much, or more, by the privation and destitution of all social comfort, in which such a calamity was calculated to leave large numbers of survivors, as from any marked or specific pestilential disease.”

In addition to the plague of 1348-9, Holinshed states that in 1479, “there was great mortality and death by pestilence, not onlie in London, but in diverse parts of the realme, which began in the latter end of September, in the yeare last before passed, and continued all the yeare till the beginning of November, which was about fourteen months; in which space died innumerable of people in the said citie and elsewhere.” And again in 14, 15, Hen. VII. 1499, “the next yeare after, there was a great plague whereof men died in many places verie sore; but epecialle, and most of all, in the citie of London, where died in that year thirtie thousand.”

Finally, the years 1545 and 1563, appear to have been great plague years, for we are informed in a tract entitled *Flagellum Dei*, consisting of a collection of the several fires, plagues, pestilential diseases, &c. that happened in London, especially since the Norman conquest, that in the first of the above-mentioned years, there died in London a very considerable number of individuals, and in the latter 21,500.

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days, 200 daily during such period gives only a total of 16,000, instead of above 50,000, as stated by Rapin. Mr. Rickman, the author of the Population Returns, computes the mortality from the plague in London in 1348, at 100,000, but he is not borne out in this opinion by any of the authorities that he himself quotes.

BIBLIOGRAPHICAL NOTICES.

XIII. *An Account of the Life, Lectures, and Writings of WILLIAM CULLEN, M. D.* Professor of the Practice of Physic in the University of Edinburgh. By JOHN THOMSON, M. D., F. R. S. L. and E. Professor of Medicine and General Pathology in the University of Edinburgh. In two volumes, 8vo. Vol. I. Edinburgh and London, 1832.

Dr. Thomson very properly remarks, that among the many eminent teachers of medicine to whom Great Britain has given birth, there is no one who, by his lectures and writings, has had a greater influence on the opinions and practice of medical men, and on the general progress of medical science than Dr. Cullen, and that it may be justly, therefore, matter of surprise, that so many years have been suffered to elapse since the death of that distinguished man without the publication of any authentic or correct history of his life and studies. This desideratum Dr. Thomson has now undertaken to fulfil from Dr. Cullen's papers, consisting of letters from private friends, sketches of essays, notes of lectures, and medical consultations, which were placed in his hands after the death of Dr. Cullen's eldest son, Lord Cullen, who had entertained the laudable desire of writing a biographical memoir of his father.

The work under notice, of which the first volume only has as yet appeared, is replete with interest, and will contribute largely to enhance the reputation of the author, from the great erudition, and the familiar acquaintance with the doctrines of Dr. Cullen and of his predecessors, it displays, and the accurate exposition of the state of medical science during the eighteenth century therein contained. It will also have another and equally important effect—that of raising still higher the already great reputation of Dr. Cullen himself. During the latter part of the life, and for some time after the death of that illustrious professor, his authority stood higher than that of any other physician, either in Great Britain, or on the continent. His writings were in the hands of every physician, in the original or in translations;—his doctrines were received and commented upon by teachers, students, and practitioners, as the only true and philosophical ones; and his *First Lines*, his *Nosological Synopsis*, and his *Lectures on the materia medica* were considered as indicating the accurate and extensive clinical knowledge of their author, and as the best possible guides for practising physicians. But time, which operates so many changes, did not spare the reputation of Dr. Cullen. His doctrine gradually, and very naturally gave way to others based upon the discoveries made since his time; and for many years his works have been superseded by others of a later date, and presenting a view of the improved state of physiological and pathological sciences. We do not think we exaggerate, when we say, that on the continent and in this country, they are now principally considered as objects of literary curiosity by the inquiring student; that the authority of their author on theory and practice has insensibly been re-

placed by that of more modern leaders, that the services he has rendered to the science of medicine have ceased to be as highly prized as they were formerly, and that there are not wanting those who regard him as little better than a theorist. The present work, however, presents in a much more favourable light, than had been before done, the merits of Dr. Cullen, and will probably occasion a change of sentiment in his behalf. We confess that for ourselves, a perusal of its contents has made us feel much more disposed than we had heretofore been to coincide with those who regard him as eminently distinguished for the accuracy of his powers of observation, for the acuteness of his discrimination, for the soundness of his judgment, for the comprehensiveness of his genius, and for the indefatigableness of his diligence "in collecting materials for the operation of his intellect."

Dr. Cullen was the second son of William Cullen, an Attorney of the Parish of Bothwell, and the factor to the Duke of Hamilton. He was born at Hamilton, a small town on the Clyde, about ten miles above Glasgow, on the 15th of April, 1710. After obtaining the rudiments of his literary education at the Grammar School of Hamilton, he was sent to prosecute his studies at the University of Glasgow. On commencing his medical studies, Dr. C. was bound apprentice to Mr. John Paisley, of Glasgow, and received from that gentleman, then engaged in extensive practice in that city, his early professional instruction. He remained two years with Mr. Paisley, and in 1729 proceeded to London, where he embarked in the character of surgeon on board of a merchant vessel, bound for the West Indies and Spanish America. After an absence of about eighteen months, six of which he spent at Porto-Bello, he returned to England, and entered the shop of Mr. Murray, an apothecary of London, with the view to prosecute the study of pharmacy and materia medica. In 1731, or 1732, he returned to Scotland to arrange some domestic matters, and resided two years in the family of a relative, where he spent his leisure time in assiduous application to his medical studies. In 1734-5 and the subsequent years we find him at Edinburgh, attending the lectures of Monro, (the first,) St. Clair, Rutherford, Innes, Plummer, and Alston, who then occupied the various chairs in the school of that city. During this time, Dr. Cullen formed an association with some of his fellow students, for the purpose of discussing such questions as the course of their studies suggested. This association soon grew in importance, and was the origin of the Medical Society of Edinburgh, an institution which continues to this day to flourish, and is said to have exercised on the progress of medical science in Great Britain, an influence perhaps superior in many respects to that of the school itself.

In 1736 Dr. Cullen commenced the practical duties of his profession as surgeon in his native town, and soon obtained the confidence of the principal inhabitants, and of the Duke of Hamilton himself, whom he attended in an alarming fit of illness. While residing in Hamilton, Dr. Cullen became the friend and medical preceptor of the late Dr. William Hunter—

"Whose disposition, genius, and love of study were every way congenial with his own. Their intercourse soon gave rise to a friendship that continued uninterrupted till the death of Dr. Hunter in the year 1783."

During his residence in Hamilton Dr. Cullen was twice elected a magistrate of that place, first in the year 1738, and again in 1739, in conjunction with a

relation of his own, Mr. Hamilton of Fairholm, and took an active share in the agricultural improvements beginning at that time to be introduced into the west of Scotland. He married in 1741 Anna Johnstone, daughter of the Reverend Mr. Johnstone, Minister of Kilbarchan, in the county of Renfrew; and continued to practice as a physician in Hamilton till the autumn of 1744, when he removed, with his family, to Glasgow. Here he formed the intention of teaching some branch of medical science by lectures. In 1744-5 he delivered a course, as appears from a letter from Dr. Hunter, and soon after entered into an arrangement with Dr. Johnstone, the professor of medicine in the university of that city, by which he was enabled, during the winter of 1746, to deliver a course of lectures on the theory and practice of medicine. Dr. Cullen also gave lectures on *materia medica*, botany and chemistry.

“In the physic class,” says Dr. Wallace in a letter to Dr. Thomson, “he never read lectures but only used notes; in the chemistry he sometimes read, but very seldom. To medical students, as a short text book, he gave out occasionally a manuscript half sheet, to be copied and circulated from one to another.”

He appears at once to have abandoned the system of Boerhaave, whose institutions and aphorisms were then very generally employed as text books in the different medical schools of Europe; traced a course of instruction founded on personal knowledge of the subject, and delivered the same opinions with regard to the theory of fever, the humoral pathology and the nervous system, which have since appeared in his writings.

“In entering upon the duties of a teacher of medicine, Dr. Cullen ventured to make another change in the established work of instruction, by laying aside the use of the Latin language in the composition and delivery of his lectures. This was considered by many as a rash innovation; and some desirous to detract from his reputation, or not sufficiently aware of the advantages attending this deviation from established practice, have insinuated that it was owing to Dr. Cullen’s imperfect knowledge of the Latin that he was induced to employ the English language. But how entirely groundless such an insinuation is, must be apparent to every one at all acquainted with his early education, course of studies and habits of persevering industry.”

Though Dr. Cullen was thus engaged in delivering lectures in the medical school of Glasgow, he was merely as a permitted teacher—not as a regular professor. In 1751 he received the appointment to the chair of medicine, through the influence of Archibald, Duke of Argyle, to whom he had been introduced a few years before. Dr. Cullen fulfilled the duties of that station until the year 1755. But at length harassed by an extensive and laborious but unprofitable practice, which deprived him of leisure for the successful cultivation of science, he became a candidate with Dr. Francis Home and Dr. Black for the chair of chemistry in the University of Edinburgh, and obtained the situation of joint professor with Dr. Plummer, after whose death he became sole professor. In 1757 Dr. Cullen undertook to deliver clinical lectures—a task in which he was aided by Dr. Whytt and Monro.

“Dr. Cullen possessed in a remarkable degree the qualifications necessary for a clinical teacher. To a minute and extensive knowledge of all the auxiliary branches of medicine, and to the great experience which he had acquired by private practice, he added a peculiar talent for the observation and accurate

description of diseases, accompanied with a strong desire, and the ready power of communicating his knowledge in the most interesting manner to his pupils. During the whole of the eighteen years that he was occupied in lecturing on clinical medicine in the Royal Infirmary, he bestowed much time and most uncommon pains on the proper performance of that duty. Of the notes from which he spoke his clinical lectures, those of the first five years and of the eighth year have by some accident been lost; but those of the other twelve years have been preserved. In these notes, constant reference is made to the case-books and the daily reports of his patients, showing how closely he followed, and what use he made of these in his lectures. Besides having the histories of the cases of his clinical patients carefully drawn out by his assistants, and giving himself daily reports of their progress, and of the medicines prescribed, (all of which, conformably with the practice of the hospital, were inserted into journals open for the inspection of his students,) it appears from his manuscript clinical lectures that he was accustomed to write down, previously to lecturing, full notes of all those particulars respecting each individual case, the symptoms of the disease, its diagnosis, prognosis, and probable causes, and the effects produced upon it by the remedies employed, which appeared to him to require or deserve attention; together with an account of the morbid appearances observed after death in those cases which had a fatal termination; in short, to take notice of every circumstance which could tend in any way to awaken the observation, and to extend the practical knowledge of his students. Even his mistakes and errors in practice, as well as his skill and success, Dr. Cullen never failed to render available to these purposes."—Pp. 107, 108.

"Besides possessing high qualifications as a clinical lecturer, Dr. Cullen had the strongest motives to employ all the powers of his mind in this new field of professional exertion. His lectures on clinical medicine afforded the most favourable opportunity that could be desired of exhibiting publicly in Edinburgh his talents as a teacher of medicine, of evincing his skill and experience as a practical physician, and of establishing by those means a claim to the chair of the practice of physic, when it should become vacant by the resignation or demise of his colleague Dr. Rutherford.

"Endowed with these qualifications, and animated by these motives, Dr. Cullen speedily obtained great reputation as a teacher of clinical medicine, acquired the esteem and admiration of his students, and gained by his attention and kind manners the universal confidence of his patients. His lectures were distinguished by that simplicity, ingenuity, and comprehensiveness of view, which marked at all times the philosophical turn of his mind; and, as I have been informed by several eminent medical men who had an opportunity of attending them, and more particularly by one who acted as his clinical clerk in 1765,* were delivered with that clearness and copiousness of illustration with which in his lectures he ever instructed and delighted his auditors. It is to be regretted that the benefits of Dr. Cullen's clinical experience were for many years in a great measure confined to his own students; and that, from his other engagements and pursuits, he was prevented from giving the results of this experience in a more direct manner than that in which we now possess it in his works on Nosology, Materia Medica, and the Practice of Physic. Had these results been presented to the public in the form of clinical reports, like those of his contemporary De Haen, it is impossible that the erroneous assertion so often ignorantly repeated of Dr. Cullen's being merely a speculative teacher of practical medicine, could ever for a moment have been entertained by the foreign medical public. No teacher of practical medicine, as I shall have frequent occasion to show in the course of this narrative, was ever at more pains than Dr. Cullen to distinguish between well ascertained matters of fact and the assumptions and conclusions of hypothetical reasoning. In leading his students to reflect and to reason, it was his constant endeavour to teach them to observe

* "The late Dr. John Fleming, long a Member of the Medical Board of Calcutta."

the course of nature in diseases, to discriminate between their uniform and essential symptoms and their merely accidental combinations, and to ascertain, as far as is possible by observation and analytical reasoning, the respective influence of the remedies employed by art, and of the operations of nature in the cure of diseases."—Pp. 109–111.

On the death of Dr. Alston, the professor of materia medica, in 1760, shortly after that gentleman had commenced his lectures for the season, Dr. Cullen was petitioned by the students to undertake the duty of the chair. He readily complied with this request, and thereby had a new opportunity of evincing to the public the great extent of his medical knowledge and his power as a teacher. The lectures which he delivered on the occasion, excited a degree of interest that had seldom, if ever been produced by any other course on that subject. This was shown, Dr. T. remarks, not only by the applause they received from those who heard them, but also by the eager curiosity with which manuscript notes taken by his students were long sought for, multiplied and circulated amongst the medical profession in Europe.

“It must have been in some measure to gratify this curiosity, that ten years after the period at which they were delivered, an incorrect edition of these lectures was, without Dr. Cullen’s knowledge, published in London from the manuscript notes of some of his pupils; and not only translated into several of the languages of the continent, but republished in Dublin and in Edinburgh. The unwarrantable liberty which had been taken by the publication of his lectures, induced Dr. Cullen to apply to the court of chancery for an injunction to stop their sale; which was immediately granted.” “As on inquiry, it appeared that the physician who had furnished the bookseller with the manuscript of the lectures was sensible of the error he had committed, and had had no pecuniary object in view by their publication, and as a considerable number of printed copies had already got into circulation, Dr. Cullen at length agreed to allow of the sale of the remaining copies on condition that he should receive a share of the profits, and that the grosser errors in the work should be corrected by the addition of a supplement.” “But though on this occasion a great injury was done to Dr. Cullen’s feelings, there was apparently none intended, and there certainly happened none by it to his professional reputation.”

Great efforts were made by the friends of Dr. Cullen to induce Dr. Rutherford, the Professor of the Practice of Physic, then in advanced years and in declined health, to resign in his favour. But owing to the prejudices which that gentleman had imbibed against Dr. Cullen, those efforts were unavailing; and in 1766 Dr. Rutherford resigned in favour of Dr. John Gregory, who had held for several years the same office in King’s College, Aberdeen, and who, though younger and less experienced as a teacher than Dr. Cullen, was still very justly considered as a physician of great learning and unquestionable talents. Dr. G. was immediately elected to that chair.

On the death of Dr. Whytt, which took place about two months after the election of Dr. Gregory, the vacancy thus caused in the chair of the Theory of Medicine was attempted by some of Dr. Cullen’s friends, to be filled by the transfer of Dr. Gregory to that professorship, an arrangement which would have enabled them to place Dr. Cullen in the chair of the Practice. This arrangement however appears to have failed from the unwillingness of Dr. Gregory to become a candidate for the theoretical chair. Dr. Cullen and his friends had, it appears, been made to believe that the purpose of choosing Dr. Gregory as

the successor of Rutherford, was to remove the objection made by him to Dr. C. and that the chair would be given to Dr. Cullen as soon as Dr. Gregory should be otherwise provided for. Their disappointment in relation to the failure of their efforts on this affair was in consequence extreme, and Dr. Cullen was with difficulty prevailed upon to accept the chair of the Theory of Physic. This, however, he at length consented to do, rather in compliance with the wishes of his friends, and in order to give the electors an opportunity of bringing Dr. Black into Edinburgh, than from any desire of his own to occupy that situation. He was accordingly elected to that office, and admitted Professor of the Institutes or Theory of Medicine on the 1st of November, 1766; and on the same day Dr. Black was admitted into the University as his successor in the Professorship of Chemistry.

An address was presented to the patrons of the university, signed by one hundred and sixty students, suggesting the propriety of a translation of Dr. Cullen to the chair of practice. This having failed, another address signed by one hundred and fifty-one students, was presented for the purpose of urging the propriety of electing Dr. Cullen and Dr. Gregory conjointly and severally Professors both of the Theory and Practice of Medicine. The proposal was at length adopted, and Dr. Gregory, after delivering three courses of lectures on the practice of physic, during the winter session of 1766-7, 1767-8, and 1768-9, was at length induced to comply with the general wish of those interested in the prosperity of the university, that Dr. Cullen should be permitted to lecture upon that subject. Accordingly we find that he delivered a short course of lectures on the practice of physic, in the summer of 1768, and—

“During the remainder of Dr. Gregory’s life, Dr. Cullen and Gregory continued to give alternate courses of the theory and practice of physic. On Dr. Gregory’s death, which happened on the 10th of February, 1773, Dr. Cullen was appointed sole Professor of the Practice of Physic.” “Such were the difficulties to be overcome, and such the exertions required to procure, first a place in the University of Edinburgh, and afterwards the proper situation in it, for the man whose genius, talents, and industry shed such a lustre over the institution, and contributed in so remarkable a degree to extend, and to perpetuate the fame of its medical school.”

Dr. Thomson has devoted a very considerable portion of the volume before us to an examination of the three great systems of physic prevailing in the medical schools of Europe at the period when Dr. Cullen first began to deliver lectures on medicine at Glasgow—those of Stall, Hoffmann, and Boerhaave, as well as of the peculiar theories of Glisson, Haller, and Whytt. After doing this, he offers a very full account of the doctrines taught by Dr. Cullen, accompanied with copious extracts from his unpublished lectures and other writings. We are precluded by our limits from following the learned biographer into details, and must content ourselves with a few words on that part of his work relating to Dr. Cullen.

The author remarks, that Dr. Cullen in succeeding to the chair that had been so ably filled by his colleague, Dr. Whytt, entered on the duty of teaching the Institutions of medicine with a reputation which it required the fullest exertion of his talents to support. To an intimate acquaintance with the theoretical and practical writings of his predecessors and contemporaries, he was known to unite a vigorous and discriminating understanding, matured by long continued obser-

vation and experience, with the most felicitous powers of exciting the curiosity and directing the pursuits and studies of his pupils.

“The success with which he taught the Institutions of medicine during the time he held that chair, redounded so much to the honour of the university and to his own fame, that his friends and admirers had ultimately more reason to rejoice at, than to regret the temporary disappointment he had experienced in not obtaining the chair of the practice of physic, which had been so long the object of his ambition.”

He arranged the subjects of which he had occasion to treat in those lectures under the three general divisions of physiology, pathology, and therapeutics, comprehending the consideration of health, diseases, and remedy. In explaining the general objects of his course, he observed that the practice of physic is the art applied to particular diseases and cases, but that before considering this art in its application to particular diseases, certain general doctrines are necessary to be premised, which are called the Institutions of medicine. Some, he remarks, are pleased to call our present course the theory of physic.

“With regard to the common notion affixed to the term theory, I must say that I mean to deliver nothing in this course but what is applicable to the cure of diseases, which is the ultimate end of all our studies; what we are to deliver in this course will be applicable to practice.”

“When gentlemen,” he adds, “call this a course of theory, if they mean by that term a deduction of reasoning, and that founded upon hypothesis, we refuse the application; but if by theory they mean the general doctrines of the art of medicine, founded upon experience and observation, I allow you to call this the theory of physic. My general doctrines are to be so many general facts.”

In thus upholding the necessity of general principles, affording a more correct definition of the term theory than is generally adopted, and establishing a distinction between that word and hypothesis, with which it is but too often confounded, Dr. Cullen advocated the same views which have been entertained by Sir Isaac Newton, Adam Smith, d’Alembert, Playfair, Dugald Stewart, and others, and helped to remove the vulgar prejudices which prevailed, and continue to a certain extent to prevail, even among medical men, in relation to the former of these terms.

Dr. Cullen divided the physiological part of his course into seven sections—the *first* comprehended an account of the general facts known with regard to the solid matter of which every organ of the body consists; the *second*, an account of the nervous system; the *third*, of the motion and circulation of the blood; the *fourth*, of the functions employed in supporting and repairing the several solid and fluid parts of the body; the *fifth*, of the *organs* employed in receiving and modifying the impressions of external bodies necessary to sensation; the *sixth*, of the motions of the several parts of the body which depend upon the action of muscles; and the *seventh*, of the functions peculiar to the sexes.

The most important and interesting portion of Dr. C.’s lectures on the theory of medicine, judging from his printed works on that subject, and from the extracts from his unpublished writings contained in the volume before us, is doubtless that relating to the doctrine of the functions and properties of the nervous system.

In combining, as Dr. Thomson remarks, the information relative to the nervous system, contained in the writings of his contemporaries, Haller, Whytt, and Gaubius, with the opinions which he had early adopted from the works of Hoffmann, Dr. Cullen seems to have constantly endeavoured to extend, improve, and methodize his knowledge of the functions of this system, and certainly in no part of his labours do the power of his mind appear to have been more successfully exerted. His speculations with regard to the different functions of that system, but more particularly with regard to that of the animal power or energy of the brain, were incorporated with every opinion which he taught concerning the phenomena of the animal economy, the causes of diseases, and the operation of medicine. They may be said to constitute a most important part, if not the sole basis, of that system of the practice of physic, which he made the subject of prelection, as well as of study, for a period of nearly forty years before he ventured to give it to the public. Of this division Dr. Thomson has given a very clear, methodical and detailed exposition—remarkable that the general results of Dr. C.'s speculations upon this subject may be comprehended under the following heads:—1st. Of the nervous system considered as the connecting medium between the soul and body, or the immaterial and the material parts of man. 2d. Of the nervous system considered as the organ of sensation. 3d. As the organ of our intellectual operations, memory and judgment. 4th. As the organ of the voluntary, involuntary, mixed, and sympathetic motions of the animal economy. 5th. Of the different conditions of the nervous system in the states of sleeping and waking, and the doctrine of excitement and collapse. 6th, and lastly. The effects of custom upon our corporeal and mental functions.

It is impossible to give, in the narrow space allowed us, an analysis of Dr. Cullen's views on these various subjects, as they are presented by his biographer. Indeed, even could we command room we should not feel disposed to undertake the task, because in the volume before us, we find, not the lectures themselves, but an analytical exposition of them; and because, nothing being less easy than to offer an intelligible abridgment of an abstract, it would be beyond our power to compress Dr. Thomson's analysis to the degree that would be required for our purposes, and at the same time preserve the interest it excites when perused in its present form. Nevertheless, as Dr. Cullen's physiological writings are little read in this country, and as his views relative to the nervous system are not well known or sufficiently attended to, we shall offer no apology for subjoining a few extracts and remarks in illustration of some portions of his doctrine.

Dr. Thomson states that in considering mind and matter as respectively endowed with qualities essentially different, Dr. Cullen regarded the nervous system as the connecting medium between the mind, or immaterial thinking part of man, and the different organs of which his body is composed. But in expressing his opinions upon these subjects, he was particularly careful to guard himself from the charge of materialism. He observed, that in addition to the arguments by which Dr. Whytt has refuted that doctrine, the association of ideas—a very fundamental part of our intellectual operations, cannot be explained upon any supposed organization of matter.

Dr. Cullen held that our sensations may be divided into two kinds:—1st. Sensations which arise from the impulse or impression of external bodies, which he

therefore names *sensations of impression*. 2d. Those which arise from the mind's being conscious of its own actions, and of the motions which it excites. These he named *sensations of consciousness*. This last was, he remarks, a new term in physiology; and it must be allowed, as Dr. Thomson states, that some such term was necessary, in order to comprehend under it a variety of feelings of the mind of which we are conscious, but which we are not able to trace to the impression of bodies external to the nervous system.

“The sensations of consciousness,” Dr. Cullen remarks, “may be referred to the following heads. 1st. Those of apperception, by which we are in general conscious of perceiving, remembering, judging, and willing, and thereby of our existence and identity. 2d. The sensations arising from the particular state of thinking, according as perception, memory and judgment are more or less clear, ready, or exact. 3d. The sensations arising from the particular state of volition, and its various modes. 4th. The sensations arising from the general state of the muscular action, as vigorous or weak, easy or difficult.” “5th. The sensations arising from particular actions, or a consciousness of the actions excited, and of the motion of the different parts of the body. These also probably take place with regard to all the internal functions.” “6th. The sensations arising from the diminution or absence of impressions. I will not say, he observes, that darkness is visible, but it is a positive sensation. The sensation of darkness or blackness is the absence of impression; it takes place when no rays of light fall on our eyes, so that the sensation of consciousness may be here separated from that of impression.”

Dr. Cullen's observations on the properties of the solid matter of which every organ of the body consists, certainly evinces, as Dr. Thomson observes, great knowledge and ingenuity; but the manner of considering this subject has of late years been so completely changed by the discovery of the constituent parts of animal matter, and by the more accurate examination of the chemical and physical properties of each of the solid parts, as to render it now as unnecessary as it would be uninteresting to detail his particular opinions upon the subject.

“It may be remarked, however, that he was aware that all animal matters may be ultimately traced to a vegetable origin; and he observes that, if we would inquire into the production of animal matter, we must first inquire in what manner vegetable matter may be converted into animal.”

He regarded the moving or muscular fibres, as a continuation of the medullary substance and nerves, and therefore termed them the moving extremities of the nerves. He supported the same opinion as Haller respecting the identity of the sensory and motor nerves; and maintained that we must either allow these nerves to be the same, or suppose that there is no where a nerve of motion which is not accompanied with a nerve of sense that is inseparable from it. This objection, as our readers undoubtedly know, has no weight now; experiments having shown, that what Dr. Cullen held in the light of a gratuitous supposition, must be viewed as an incontrovertible fact. He rejected the hypothesis of the communication of motions through the different parts of the nervous system by means of vibrations of the nerves, or of a fluid secreted in the brain. Nevertheless he conceived with Hoffmann and others, that the agency of some subtile fluid in this system is necessary, in order to fit it for the communication of impressions from one part to another. This fluid he termed the *nervous fluid*; but without meaning, as he himself informs us, to determine any thing with regard to its source, nature, or manner of acting. Though he conceived the mus-

cular fibres to be a portion of the nervous system, he was disposed to attribute the power of contractility which they possess, and which, he observed, is not possessed by any other portion of this system, to some peculiarity of their organization, without professing to explain in what this peculiarity consists, and on what physical change in the condition of muscular fibres, their contraction depends.

Dr. Thomson remarks, that though Dr. Cullen acknowledged it to be possible that the property of irritability may, as Haller and others had believed, reside entirely in the muscular fibre itself, independently of any influence derived from the nervous system, yet he maintained that in the production of all the voluntary, involuntary, and mixed motions of the animal economy, the muscular fibre is always more or less influenced by an energy derived from the nervous system.

“The vigour of the inherent or contractile power of the muscles,” Dr. Cullen observes, “cannot be evident in a living animal, because we cannot be certain of its acting entirely without the nervous power; and, with regard to the strength with which a muscle contracts, I cannot undertake to show that, in different conditions of the body, as it is weakened by disease or by various other causes, or as it is increased by powers which have that effect, this contraction will be perceived to be manifestly different; and I shall have many occasions to prove that the tone of the inherent power is increased or diminished by causes acting upon the brain, and upon the brain alone.”

To this influence of the nervous system upon the muscular, involuntary as well as voluntary, he gave the name of the *animal power or energy of the brain*. This term, he observes, has not been common in our systems of physic; but if, in all the communications that take place between the different parts of the body, much depends upon the present state of the brain, we will not be in any difficulty in lodging a particular power there, of which we shall speak under the name of animal power, or energy of the brain.

“This animal power we suppose to be seated in the brain, and only there seated. Whether you consider it, as Dr. Whytt did, as a sentient principle, or as automatic vital energy, depending upon the peculiar organization of all the several parts of the nervous system, it is probably the fundamental part of the system without which the functions cannot long remain.”

In reference to the theory of sleeping and waking which teaches that in the latter state the animal spirits are gradually exhausted, whilst during sleep, on the other hand, they are recruited, Dr. Cullen observed, that it is embarrassed with many difficulties. He endeavoured to account for the alternate exercise and suspension of sense and motion, which occur in the two states in question, by an increased or diminished mobility, or a more or less excited state of the ethereal medium which Sir Isaac Newton had suggested as the cause of the phenomena of sense and motion. But he nevertheless regarded this explanation as an hypothesis and wished it to be received as such by his students. On this subject he says—

““I take it for granted, that when you consider the weakness and manifest mistakes of any other hypothesis, you will readily, with me, think that the condition of the nerves, fitting them for the communication of motion, consists in some state of the matter of the nervous fluid itself, and of its having more or less mobility; in some cases being capable of being moved with more ease and

vigour, while in other cases it is unfit for either. Now, I say, merely to avoid long expressions, I shall choose shorter ones, and shall speak of the moveable state of the nervous fluid, or of that condition of the nervous system which fits it for the communication of motion, under the term of its *excitement*, and a deficiency or less degree of this I shall call its *collapse*. Now, you must merely consider these as terms employed for what I take to be matters of fact, the increased or diminished force of the animal power or energy of the brain, and not as importing matters of theory, or as expressing any thing with regard to the nature of the nervous fluid, or wherein these different states of the nervous system consist. Whatever hypotheses I may have fancied to myself, I consider these as hypotheses still, and dare not trust you with them, unless you take them as they pass in my mind, and be very certain never to apply them in particular cases.'

" 'I have been a little at a loss,' he observes, 'in the application of the terms of excitement and collapse. There is nothing more manifest than that the degree of excitement is very different upon different occasions; if we take the lowest, every higher degree than that must be called a degree of excitement; and if we take the highest degrees, and consider the lower degrees that may take place while life still subsists, every lower may be called a degree of collapse. The same ambiguity occurs with regard to the terms of heat and cold, which may be absolutely applied to the same individual state of bodies; and philosophers have not yet agreed where they should begin with applying the terms heat and cold; and so it may be with regard to the terms excitement and collapse. In saying that, in the ordinary state of waking men of health, the excitement is total with respect to the functions of the brain, but readily admits of diminution so as to produce the state of sleep, I mean,' continues Dr. Cullen, 'to settle the matter a little more exactly. I would call those states, states of excitement, where the excitement is total with regard to the functions of the brain, where there is in every part the general exercise of sense and volition. I know that there are many cases where there is a mixture of the excitement and the collapse, or of the increased and diminished energy of the brain, but I hold that to be the state of waking and of excitement, when the whole of the functions of the brain can be exercised; and, upon the contrary, whenever these functions are for the most part suspended, that I would call, more strictly, a state of collapse; and so upwards and downwards as it may occur. A degree of collapse, or diminished energy of the brain, takes place in the case of natural sleep; we call it a state of collapse when the excitement is partial, when the collapse prevails so far as to suspend very entirely the exercise of the functions of sense and volition, so that such a collapse takes place in sleep as is sufficient to weaken the general activity of the brain.'

"In extending his application of the doctrine of excitement and collapse to the morbid phenomena of the animal economy, Dr. Cullen made choice of mania and syncope, as two affections calculated to illustrate his opinions respecting these opposite states of strength and weakness, vigour and debility, sthenia and asthenia of the nervous system; the first, mania, being an example of a disease in which the excitement is increased above the natural standard; and the second, syncope, of one in which the excitement is reduced below that standard, or in which a degree of the state of collapse or diminished energy of the brain takes place." pp. 310-314.

Dr. Cullen was led to apply to the nervous system the terms *excitement* and *excitability* by a species of analogy derived from the theory of electricity, and the example of bodies in which electricity could be excited and accumulated; conceiving that the nervous fluid might, during life, be capable of excitation and discharge or exhaustion. This was perhaps suggested to him by the attempt which Sauvage had made to establish an analogy or identity between the supposed nervous fluid and electricity.

“Indeed Dr. Cullen himself, in assigning his reasons for believing that the motion exerted in the sentient extremity of a nerve in the process of sensation, must be of the oscillatory or vibratory kind, suggests that it may somehow depend upon an electric tremor.”

The term collapse, Dr. Thomson thinks, was probably derived by Dr. Cullen from Børhaave, who, in stating what he conceived to be the proximate cause of sleep, says, that in so far as the solids are concerned, it is the compression or *collapse* of the smallest vessels of the brain, in consequence of which they cannot transmit their fluids.

The preceding details will be read with interest as conveying a correct idea of that part of the doctrine of Dr. Cullen, which has always been regarded as constituting one of its most remarkable features, and has been designated by continental writers under the appellation of the *theory of excitement*.

We have already dwelt so long on the physiological views of Dr. Cullen, that we have not sufficient space left for an exposition of his pathological doctrine. But we cannot refrain from presenting here a few details explanatory of his opinion relative to proximate causes, or morbid states, and to the diseases of the fluids. Proximate causes, according to him, are generally *compound*, consisting of different conditions in different parts of the animal economy, which all concur together in the case of actual diseases as they affect individuals. In a course of lectures on the practice of physic, proximate causes may be considered in this concurrence; but in pathology they must be taken separately. Such a consideration has given what pathologists have called the *morbi simplices*. As the proximate cause of a disease, he remarks, may consist in a fault either in the solid or in the fluid parts of the body, the diseased states are divided into those of the solids, and those of the fluids. The diseases of the solids are of two kinds; those of the solids as they are in common to the whole of the body, and those of the same solids as formed into various organic parts. This gives again what may be considered as the *morbi solidi simplicis*, and the *morbi organici*. Dr. Cullen considered it as a well-established fact that the fluids have a share in the performance of the natural functions and that their deviations have a share in disease. The *vitia fluidorum*, he adds, are therefore, agreeably to both ancient and moderns, properly considered in a general pathology, as proximate causes of diseases.

“But diseases properly consist in the *actiones læsæ*, and consequently there may be a great many deviations in the state of the fluids, from their most healthy state, without diseases being produced; it is only, as Gaubius says, when the solids are at length affected, that they form diseases. The pathologists, therefore, have been very improperly employed in considering only the affections of the fluids. Physicians have been accustomed so long to talk upon this subject, that they do not apprehend the mystery, as I would call it, in which it is involved; but it is still involved in a great deal of obscurity, and I think I cannot do better than to consider the subject as it lies in Gaubius, under the two heads of *morbi humorum absoluti* and *morbi humorum relativi*, the former comprehending changes in the coherence of the fluids, their vitiated qualities, and the vitiated states of the secretions; the latter changes in the quantity, in the place, and in the motion of the fluids. In commenting on Gaubius’s divisions, I shall often have more to object to than to illustrate, but I could not attempt a system for myself, and it is to be presumed that Dr. Gaubius, who is a man of uncommon discernment and great erudition, has put the matter in as clear a light

as is possible, and that in considering what he has written, we shall see at least the present state of our knowledge on this subject." p. 341.

In reading these and other extracts from his lectures on physiology, pathology, and therapeutics, contained in the volume before us, it is impossible to refuse admitting that Dr. Cullen possessed a very uncommon share of sagacity, originality, and ingenuity, combined with energy and soundness of judgment, and great learning.

"The imperfections of Cullen," as is remarked by judicious writers, "were the imperfections of the period in which he lived, and of the science itself, which it was his delight to cultivate; and if we are now in a situation to discover the blemishes of this luminary of medicine, it is chiefly by means of the refulgence which his genius has reflected on every object that lay within his range."

His doctrines, physiological and pathological, were soon adopted with more or less modifications and acknowledgment by almost all the physicians of Scotland and England, as well as by many continental writers; and it does not require much trouble to find, that most of the doctrines which have occupied the attention of the medical world since his times, those of Berlinghieri, Borsieri, Stoll, Blumenbach, Sprengel, Reil, Bichat, Pinel, &c. are greatly indebted to the views contained in his writings and developed in his lectures. It may be remarked also that M. De la Roche, in his *Analysis of the Functions of the Nervous System*, a work which excited considerable sensation in Europe, reproduced all the essential doctrines of Cullen on this subject, as a system of his own.

As we have already stated, the second volume of Dr. Thomson's work, which will present a continuation of the biographical details of Dr. Cullen, as well as an account of the publication of the first lines, and nosology, has not as yet made its appearance. The profession is, indeed, greatly indebted to Dr. T. for the very full, interesting, and valuable exposition he has given of the doctrine of Dr. Cullen, and for the history of the progress of medical science during the life of that eminent professor. No one was better qualified than Dr. T. for the performance of that difficult task, and those who peruse the work will we are sure cheerfully admit that he has done it the amplest justice. L.

XIV. *An Inquiry concerning the Indications of Insanity, with suggestions for the better Protection and Care of the Insane.* By JOHN CONOLLY, M. D. Professor of Medicine in the University of London. London, 1830. pp. 496.

Dr. Conolly devotes his volume, as may be gathered from the above title, not to the general pathology and treatment of insanity, but merely to its diagnosis—to the means by which the practitioner discriminates the deranged from the sane mind, and decides upon the momentous question of liberty, with civil and social responsibility, or of coercion and a cell. Unquestionably this inquiry is fraught with a deep and painful interest—it is one of those in which society holds the deepest stake, and feels the most excited and laudable curiosity. Dr. Conolly had, at the period of his publication, devoted a share of his attention to this subject for many years, and for five of them had held the appointment of Inspecting Physician to the Lunatic Houses for the County of Warwick. He therefore, appears before us supported not only by his general reputation, but

by the authority derived from some experience. And yet the volume, though abounding in profound reflection, acute remark, and much soundness of comment and originality of suggestion, does not, upon the whole, assume in our eyes the air of long and extensive experience. Dr. Conolly has been an inspecting, and not an attending physician; and the marks of this character appear to us to be visible in many parts of his book. They exhibit themselves, we apprehend, in a greater facility of stating difficulties than of pointing out the best methods of vanquishing them—he seems rather to manifest a willingness to enact and express rules and make demands, than to feel himself in the light of one of the humble executive who are to benefit by the criticisms, and comply with the requisitions.

In Chapters I. and II. and in many other parts of the volume, Dr. Conolly enlarges with much eloquence upon the great importance of the certificate of a physician in a case of insanity, and upon the defects in practice in this particular, which prevail in England. It is difficult to judge at this distance, of the extent to which his criticisms are applicable to the facts; but if, as he states, certificates are lightly given, in complaisance to the wishes of friends, and restraint and removal from the controul of property follow as a consequence, the more especially in a country where private mad-houses are numerous, there would certainly here seem to be need for a reform. Such weak and trivial precautions against injustice and error in a matter so important as depriving a citizen of his liberty, seem to us hardly consistent with the genius of the British common law.

Dr. Conolly leads us into an inquiry of very considerable interest—how far the existence of a partial insanity justifies depriving a man of his liberty, or in other instances, even of the command of his property. He apprehends that a lunatic asylum is a very improper place for a large portion of those who are commonly detained in such establishments; and urges with much feeling, the injury done to the minds of those who retain a painful consciousness of their situation. Such as these have frequently expressed to him the grief they felt from the degradation to which they are subjected by coarse and mean attendants. They often feel heavily the sense of their own mental infirmity; and this is aggravated by the distressing sights which surround them, the contempt daily exhibited for their opinions and motives, and the privation of the company of their nearest and dearest relatives. These considerations are subjects of apprehension with the popular mind, and will naturally receive much attention, and excite the feelings of persons of sensibility. Their foundation is real, although they are perhaps exaggerated by Dr. Conolly. An experience of insanity greater than that of most men, has led us to believe that these evils, although productive of more or less injury to all who still retain sensibility and observation sufficient to feel their influence, are, in the majority of cases, overbalanced in a well-regulated asylum by the advantages of the institution. Among these we would class removal from old and morbid associations, absence from all those objects which have become interwoven with the first disordered feelings, freedom from that struggle for power which such unfortunate individuals generally entertain with their friends, and from the mortification arising from the authorized disobedience of children and servants, regularity of hours and

occupations, monotony of life, which acts as a sedative upon the mind, and privation of all stimulating diet and drinks, a regulation which it is almost impossible to enforce in private families.

Our object, however, is not to detail our own opinions, but to sketch those of Dr. Conolly, and we will therefore not make any further comment upon the moving and too frequently correct picture which he has given us of the miseries of the partially insane. Dr. Conolly apprehends that a great portion of those confined in mad-houses are fully capable of enjoying a large share of the comforts and enjoyments of the domestic scene, even if unfitted for business, and that in many instances, derangement upon a single topic should by no means restrain them from the administration of their own affairs. We are shocked at the frequency with which Dr. Conolly appears to think persons are incarcerated in a mad-house under pretence of insanity, founded upon a mere eccentricity of character, in order that heirs or guardians may enjoy their property. Many of our readers will recollect the story alluded to in the following extract.

“An unfortunate gentleman fancies that a Princess is in love with him—a very harmless fancy in itself; he wanders about the woods, or spends his romantic days on the banks of a river, and meditates on his passion. Surely he might spend his time less innocently than this! He carves the name of his beloved on trees; he indites moving letters to her in cherry juice. He fancies himself debarred from seeing the face he adores, and thinks he is a prisoner in some high tower which overlooks the flood—fancies foolish enough, but certainly not very dangerous! He commits his letter to the guardianship of the river, and bids the waters ‘flow on,’ and ere they reach the sea, convey his written words to the bower of his mistress. There is nothing very criminal in all this. But the poor man has money, and relations who want it. Instead, therefore, of being allowed to become tired of his fancies, which he would be in time, he is waylaid, forcibly seized, carried off to a private mad-house, and inclosed within some dismal yard, with none but lunatics for his companions. By some rare accident, an opportunity is given of investigating his real state in a court of law; and because the suspected man will not abandon his princess, or does not deny the affair of the cherry juice, there arises a sound of triumph among his relatives, learned men felicitate themselves in having discovered what was so difficult to be discovered, the cause is at an end, and the foolish lover is deprived of his property and his liberty, and sent back to his horrible imprisonment.” p. 384, 386.

“A man must not be made a prisoner for life because he chooses to wear a coat the wrong side outwards, or a painted hat. It may be more necessary to protect him from others than others from him; and therefore an asylum may be to him what its name imports—a sanctuary and a refuge; but unless he is disposed to injure others, or himself, he must not be subjected to severe constraint. If he has property, and can take care of it, no one ought to touch that property on account of his peculiar dress; if he has none, and can earn his livelihood, no one should interfere with him, except to protect him from the persecutions of others.” p. 431.

The arguments by which Dr. Conolly urges the adoption of a narrower rule of selection among the objects to be committed to mad-houses, are continued through several chapters, some of which are at the close of the work. Between these parts intervene a series of articles on the means by which we are to discriminate cases of insanity from those of simple eccentricity. Chapter III. is entitled “The Constitution of the Human Understanding.” This we should think rather a comprehensive subject for twenty or thirty loosely printed pages.

Dr. Conolly, it would seem, thinks this necessary in his country to render the work intelligible; and let it be remembered, that this is no catchpenny publication, or treatise for the use of schools, but a grave and most important inquiry, conducted by a Professor at the time of the University of London, and affecting the liberty and property of English gentlemen. It ought, therefore, to be addressed to men of education. Notwithstanding Major Hamilton's remarks upon the deficiency in this last mentioned particular, which he observed in the United States, we sincerely hope such a chapter will never be thought necessary in this country; and we apprehend that most readers could fully understand Dr. Conolly's lucid work, without any such preliminary metaphysical instruction. Several chapters are occupied with the varieties of the human mind, which are produced either by original formation, the action of various stimuli, the effects of disease, and the progress of age. A chapter then describes insanity, another more immediately discusses the duties of medical men in relation to the subject of discrimination, and a third and final article is composed of suggestions for the better protection and care of the insane.

The favourite theory of the author, which, with the appeal against habitual abuses, form the two great staples of the work, is nearly as follows. The variety of impulse and errors of the mind, which constitute diversity of character, and which when exaggerated, assume the title of eccentricities, are designed by the author of nature to be regulated by *comparison*. By comparison the thinker discovers the fallacies which have occupied his reveries—the apparitions which are conjured into existence by his imagination, are seen to differ from real objects, or to exist under circumstances where reality is impossible; and hence he discovers his error, and instead of being insane, he is only a man imaginative, or subjected to deception of the senses. By comparison the man whose fits of suspicion, passion, or self-esteem approximate to insanity, discovers the disproportion between his excitement and that which ought to follow such a cause; and hence, although he commits the fault, he becomes aware of it. This principle is not very new, and perhaps some of our readers may be of opinion that the last application of it would include as insane more than are at present under medical superintendence.

It has always appeared to us, that there is something essentially indefinite in the idea of insanity. Like that of disease, it consists in the derangement of functions; but as the regular, or so called normal performance of these functions is without rigorous definition, it is impossible to fix precisely what constitutes a deviation from it. The question partakes, and this is much to our present purpose, of the glorious uncertainty of the law. It is unanswered by any general expression, and is liable to constructions drawn from opinion. A magistrate is forbidden to exact excessive bail; but who is to determine how much bail is excessive? The answer is made to depend upon the merits of each individual case, and is liable to all the usual imperfections of human intellect and human passions.

B. H. C.

XV. *An Essay on the Nature of the Epidemic, usually called Asiatic Cholera, &c. with the reasons why it should be regarded as an Epidemic Diarrhœa Serosa, instead of Common Cholera Morbus; and an Attempt to found the Treatment upon the Pathology of the Disease; being the Annual Communication to the Medical Society of the state of New York, February 5, 1833.* By THOMAS SPENCER, M. D., President: Honorary Member of the Kentucky and Philadelphia Medical Societies, Corresponding Member of the Albany Lyceum of Natural History, &c. Albany, 1833. 8vo. pp. 131.

We have been much gratified with the perusal of this essay of Dr. Spencer, and have to regret that the press of other matter has prevented us from reviewing fully its contents. The author professes to have derived his conclusions in relation to the disease chiefly from his own clinical observations, and although they differ widely, in many points, from our own views, drawn from a similar source, we, nevertheless, cannot but view them as highly ingenious and plausible.

Dr. S. has attempted to show that the disease under consideration is identical in its nature and symptoms with the *diarrhœa serosa* of medical writers, especially when the latter has occurred epidemically. Whether this is admitted to be the case or not, is of little import, as it can lead to no very definite results in regard to the actual pathology of the disease: we have certainly had ample opportunities for studying the phenomena of epidemic cholera, and in that manner of arriving at a correct knowledge of its pathology, without the necessity of resorting, with this view, to the imperfect accounts transmitted to us, of any similar disease, by the older writers. The term cholera, in its modern acceptation, is evidently a misnomer, and yet the striking similarity between the symptoms of the present epidemic and the disease described by the ancients under the name of cholera, would lead us to suspect that the latter did not employ the term to indicate an increased discharge of true bile, but of vitiated fluids generally.

The essay of Dr. S. presents a tolerably accurate description of the symptoms by which epidemic cholera is accompanied, from its commencement until its termination. In a few instances, however, they are not recorded exactly in the order of their succession in the generality of cases, and we notice the omission of one or two, at least, which are almost invariably present.

In the first, or forming stage of the disease, attended with serous diarrhœa, the author conceives that the symptoms depend on an increased excitability of the exhalant tissue (?) of the gastro-intestinal mucous membrane, by which it is rendered highly susceptible to the action of irritants, so that the imperfectly digested food or mild laxatives often excite profuse evacuations. The stomach and liver are at the same time in a state of more or less torpor, so far at least as regards their appropriate functions. The whitish or milky appearance of the discharges frequently noticed in this stage of the disease, Dr. S. attributes to the chyle not being taken up by the lacteals, and hence being discharged mixed with the stools. It is a fact, however, of which the author should have been aware, that chyle is never found excepting in the lacteals—the opinion which formerly prevailed that chyle was formed in the duodenum has been satisfactorily shown to be incorrect.

The production of the more prominent symptoms of cholera are thus explain-

ed by the author. By an irritation induced in the morbidly excitable secretory tissue of the intestinal mucous membrane, an augmented amount of blood is determined to the capillaries of the latter, and an increased exhalation of watery fluid takes place. In consequence of the great amount of fluid, containing certain saline substances in solution, thus removed from the blood, this is rendered thicker and less adapted to circulate through the smaller vessels. The freedom of the circulation is still further crippled by the diminution in the volume of the blood, depriving the heart of its necessary stimulus of distention. The diminished mass and volume of the blood and defective action of the heart are the principal causes of the failure which takes place in the respiratory function of the lungs; which, in connexion with the want of a due amount of blood in the capillaries, prevents the due development of animal heat. The biliary and urinary secretions are suspended in consequence of a deficiency of those materials from which the bile and urine are elaborated by the liver and kidneys; while the spasms of the muscles are produced by the lessened amount of arterial blood which circulates through the vessels of the brain. No accurate opinion can be formed of the correctness of these views unless the facts and arguments adduced by Dr. S. in their support are carefully studied.

The treatment of the several stages of cholera which the author details is that which he has himself found most successful. In its general features it is unquestionably judicious. We have found, however, the lancet, but more especially cups to the abdomen, an important remedy in a larger number of cases and at a later period of the disease than those to which Dr. S. restricts their use. To a few of the remedies which he directs we should be inclined decidedly to object.

We recommend the present essay to our readers, fully persuaded that they will derive instruction from its pages, even though they should not adopt entirely the pathological or therapeutical views of the author. D. F. C.

XVI. *A Report of the Method and Results of the Treatment for the Malignant Cholera, by small and frequently repeated doses of Calomel; with an Inquiry into the Nature and Origin of the Complaint, with a view to a more just appreciation of the Means for its Prevention and Cure. With numerous Illustrative Cases.* By JOSEPH AYRE, M. D. Member of the Royal College of Physicians of London, and late Physician to the General Infirmary,—to the General Dispensary,—and to the Lying-in Charity of Hull. London, 1833. pp. 167.

Dr. Ayre is well known in this country by his Treatise on Dropsy, and still better by his “Observations on the Nature and Treatment of those Derangements in the Functions of the Liver and of the other Organs of Digestion, which produce what are denominated Bilious Complaints,” and which was republished here, and received with no inconsiderable degree of favour. In the present work the author has extended the views sustained in the last mentioned publication to cholera. The following is a summary of Dr. Ayre’s opinion respecting the pathology of this disease.

“1st. That the cholera morbus essentially consists in an interruption, and, in its malignant form, in a sudden and entire cessation of the secretion of the liver, and primarily, as the result of it, of a congestion of the portal circle, or

secretory system of veins of the liver; and, in the malignant kind, successively of those veins of the abdominal viscera and vertebral column, whose venous circulation is associated with them.

“2d. That the congestion of these important systems of veins becomes a cause of a diminution, and at length, in the malignant type of the complaint, of an entire suppression of the secretion of the kidneys, and of a congestion of the vessels of the chest, at the same time occasioning violent contractions of the voluntary muscles, with a disturbance in the nervous system. That from this state arises a great and general abeyance or collapse of the vital powers, and an interruption to the course of the blood through the capillary system of vessels, and to the changes it should undergo there; together with a loss of animal heat, and a livid state of the surface as the results of it.

“3d. That besides the physical interruption caused in the circulation by the congestion of the abdominal and hepatic, and at length of the thoracic and vertebral veins, there is an interruption given by it to those chemical changes of the blood, and to the expulsion from it of those noxious and excrementitious principles, which it is one purpose of the kidneys and liver and lungs severally to effect.

“4th. That beside the general effects in the system, the stomach and bowels become especially affected with a morbid irritation in their capillary system, which is caused in obedience to a law of the system, by which the congested state of the veins becomes an indirect stimulus to the arteries of the organs implicated in it.

“5th. That the final cause of these efforts of nature appear to be, to overcome the congestion; while, pending the effort, and in default of succeeding in it, an increased current of blood is driven into the exhalant extremities of the mucous surfaces of the stomach and bowels, and a copious muco-serous secretion is profusely poured out from them.

“6th. That in the cases where the congestion terminates spontaneously and *favourably*, it is by a renewal of the secretion of the bile, and frequently, in the English or common type of the complaint, by such a sudden and copious discharge of it as to occasion a copious purging and vomiting of that fluid.

“7th. That where this remedial reaction does not take place, and the powers of life are not overwhelmed by the congestion, this latter state becomes wholly relieved by an increased action taking place in the capillary system communicating with the congested veins, and an inflammation becomes established in the mucous tissues, and a fever as resulting from it, which, relatively to the stage of collapse, is appropriately termed consecutive, but which differs not in its nature and results, excepting in intensity, from the common bilious fever of this country.

“8th. That this inflammatory action succeeding to the simply increased one in the mucous tissues of the stomach and bowels, becomes a remedy to the *severe* dejections and vomitings, and to the blue or collapsed stage; and is thus a remedy, though a morbid one, to the congestion which caused them; while the bowels become constipated, the urinary secretion restored, and the alvine discharges changed from their whey-like appearance, and perfectly fluid state, to the colour and consistence of tar.

“9th. That the remote cause of the foregoing pathological conditions consists in a morbid irritation primarily set up in the stomach and bowels by a certain malaria, assisted by unwholesome ingesta;—that the malaria is of a specific nature, and generated in certain localities conspicuous for defective drainage and other definite peculiarities, and modified or wrought into its state of malignancy by certain concurrent, but unappreciable conditions of the atmosphere;—that the specific malaria thus modified exerts its influence chiefly in the localities where it is generated, and where, from its concentration, it is imbued with the most power; and, lastly, that it affects within the range of its influence almost exclusively those only of the community in whom a predisposition is induced by the habitual disuse of animal food, and by the derangement

of the stomach and of the system, and which has resulted from an exclusive, and, therefore, inordinate use of a vegetable and ascescent diet."

The therapeutics of the author is exceeding simple—

"The suspended secretion of the liver," he states, "forms the essence of the disease; the restoration of its secretion forms the remedy for it; and the agent by which this is to be produced, must act upon the stomach, and immediately through it upon the liver." p. 75.

This agent he conceives to be calomel—

"In giving the remedy it must be borne in mind," he says, "as a principle governing its use, that the primary action of the medicine is to be upon the stomach, and that its *direct* action must be limited to it. To effect this purpose it is necessary to prevent its early descent into the bowels; and to do this its dose should be small, that it may not act purgatively, nor otherwise, as an *irritant*, disturb the functions of the stomach, and it should be repeated frequently, that its effects be continued, so that all the advantages of a large dose may be obtained without suffering the *irritation which such a dose would produce* when given entire. From experience in the effects of a small dose of calomel, as of half a grain or a grain, I have long ascertained that for all the practical advantages of the medicine acting on the liver through the stomach, a small dose is at least equal to a large one, with the advantage superadded—and it is no small one in cholera—of its producing no irritation. To those who entertain a predilection in favour of a large dose of calomel, from the consideration that the *maximum* dose of a useful medicine must be the *best* one, it may be observed, that no rule can be laid down for the appropriate dose of any medicine, when directed to a specific object, unless a reference be had to experience as the guide to the forming of such rule; for, as to any thing that can, *à priori*, be determined to the contrary, a given dose of a medicine may act beneficially, while a larger one may have the opposite effect; and thus that one grain of calomel, like a moderate quantity of food, may afford a healthy stimulus to the stomach; while a large dose of ten, or twenty grains, which were so generally given in this disease, like a repletion from food, may occasion an unhealthy or morbid stimulus to it, and either nullify the effect, or substitute a morbid one for that which was required. In fact, the maximum dose of a medicine for the producing of a given effect upon the stomach, will be always greatly within the line in which a given dose of a medicine may be allowed or borne; as it is well known that almost every active medicine varies in its effects according to the dose which is given of it. Of this a familiar instance is afforded by the drug ipecacuanha, whose dose, if minute, and repeated at wide intervals, becomes a tonic to the stomach; if somewhat larger, a diaphoretic; still larger, a debilitant, by the nausea it produces; and, finally, at its maximum dose, it irritates and acts as an emetic. And that which the ipecacuanha produces in its minimum dose, as distinguished from that caused by the larger or largest ones of that medicine, it is believed that the small dose of the calomel effects with a specific power on the liver, through its intermediate and mild agency on the stomach; and which is distinct from that which would arise from a large dose, from the property this last has to act as an irritant to the stomach, and thence to communicate a morbid irritation to the liver."

In the premonitory stage Dr. Ayre gave the calomel in doses of one grain united with two or three drops of laudanum, and repeated hourly, or every half hour, for six or eight successive times, and then every six hours or twice a day for a short period, p. 81. In the stage of collapse he administered the same medicine in a single grain dose, made into a pill with bread rubbed into a mucilage with gum water, and so minute as to weigh, when dry, but *one grain and a half*, taken every five minutes, and with it a single drop of laudanum, or Battley's sedative liquor in a tea-spoonful of cold water, p. 82. In a few cases

of extreme severity, he gave two grains of calomel every five minutes for an hour or two, and then resumed the ordinary dose of one grain. Dr. Ayre seems to depend upon the calomel alone in the treatment of the disease.

“In the view which I have now given,” he remarks, “of the course of treatment pursued by me in this disease, it will not fail to be observed, that no allusion is made to any other means as auxiliary to the calomel. The truth is, that, with the exception of cataplasms of mustard to the stomach, which I sometimes ordered, and, perhaps, as frequently forgot to order, and bags of hot sand to the feet, with a regulated allowance of cold water as drink, I resorted to *no other means whatever, not even to a single trial of any other, than the calomel and opium*; for, indeed, my intention was early formed to give an ample trial to this treatment; and having a strong conviction that it would be efficient,—and which my experience in the treatment early and abundantly confirmed,—I determined to unite no auxiliary means with it; since their effect would be either to compromise its success, or disturb the conclusions to be deduced from it, I considered, in fact, that if the use of emetics, or bleeding, or stimulants, or opiates in large doses, or the neutral salts forming the saline treatment, or any other of the many means adopted so profusely for its cure on its first entrance into this country, and which were copied, generally, from the practice on the Continent, were necessary in any degree, even as auxiliaries to the calomel in removing the congestion, and restoring the secretion of the liver, that my notion of the nature of the malignant cholera must be unfounded, and especially in respect to the relation which I assumed it to hold to the common cholera of this country, in which, I well knew, no such aids are needed.

Our readers, we presume, are so satiated with the subject of cholera, that they will gladly excuse our not entering into the investigation of the correctness of the above views. It is almost unnecessary perhaps even to state that we are far however, from yielding to them our sanction. It does appear to us that it would be just as proper to assert that the suspended secretion of the kidneys is the essence of the disease, as that the suspension of that function in the liver is, and the argument adduced in support of the latter opinion is equally true of the former, viz. that the restoration of the secretion is followed by an amelioration in the condition of the patient. But the suppression of both these secretions is a mere secondary result of the disease, a consequence of the excessive secretion from the gastro-intestinal mucous membrane—an exemplification of a physiological law, that whenever one secretion is excessive, the others are proportionally diminished, or entirely suppressed. The indication in cholera, then, is to lessen the excessive secretion from the bowels, and we observe that as soon as this is effected, if the patient be not utterly exsanguineous, the other secretions are restored.

Dr. Ayre treated in private practice 219 patients, of whom 176 recovered, or three-fourths, a proportion not greater we believe than attended the treatment of patients in *private practice* in this city. Be this as it may, however, we suspect that the success of Dr. Ayre's treatment is mainly attributable to the cold water and small doses of laudanum, and that the calomel might with great advantage have been omitted. We entertain, at the same time, little doubt that the treatment we have commented on would be attended with far more favourable results than the stimulating and perturbing treatment so generally adopted in England and elsewhere on the first eruption of the epidemic. To those who still feel an interest in the subject, we recommend a perusal of Dr. Ayre's work: the author's opinions are fully entitled to a respectful consideration.

After some general remarks on the state of the hospital, we are presented with the reports of the physician and surgeon, Drs. Sandtmann and Fricke, for the years 1828 and 1829. From this it appears that of the 9,270 patients treated during that period, 6,080 were males, and 3,190 females. Of the 6,594 discharged, 4,591 were males, and 2,193 females; and of the 1,111 who died, 749 were males, and 362 females.

In 1828 the fewest patients treated per diem was in July; namely, 1,269; the largest number was in December; namely, 1,326. The medium daily proportion for the whole year was 1,237. In 1829 the fewest number per diem was in October; namely, 1,268; the largest in February; namely, 1,374. The medium daily proportion for the whole year was 1,335.

In 1828, 12 male and 4 female patients died immediately on, or soon after admission; and in 1829, 14 males and 3 females. Total 33; namely, 1 of rabies, 1 of fractured skull, 2 of nervous fever, with neglected inflammation of the lungs and abdomen, 1 of chronic inflammation of the brain and stomach, 6 of apoplexy, 2 of concussion of the brain, 2 of wound of the throat, (suicide,) 1 of delirium tremens, 1 of inflammation of the brain, 1 of neglected abdominal inflammation, 1 of dropsy, 3 of asthma, 1 of gastritis from swallowing sulphuric acid, 2 of neglected pneumonia, 1 of fracture of the pelvis, 1 of strangulated hernia, 1 of old age, 1 of paralysis of the lungs, 1 of drunkenness, 1 of nervous fever, 1 of concussion of the spine, and 1 of apoplexy from enlargement of the heart.

In 1828, 7 males and 1 female, and in 1829, 4 males and 2 females died within the first twenty-four hours after admission, total 14; namely, of apoplexy following epilepsy, 1; of paralysis of the lungs, 1; of dropsy from disease of the heart, 1; of dropsy with chronic pneumonia, 1; of fractured skull, 3; of chronic inflammation of the thorax and abdomen, 1; of strangulated hernia, 2; of delirium tremens, 1; of compound fracture, 1; of asthma, 1; of concussion of the brain, 1.

In 1828, 10 males and 4 females, and in 1829, 5 males and 4 females died on the second day after admission, total 23; namely, of hæmoptysis, 1; of apoplexy, 2; of apoplexy after mania, 1; of peritonitis, (male,) 1; of strangulated hernia, 2; of compound fracture, 1; of asthma, 5; of nervous fever with asthma, 1; of the same with abdominal inflammation, 2; of chronic hepatitis, 1; of the same with delirium tremens, 1; of dropsy, 1; of pneumonia, 1; of fractured spine, 1; of old age, 1; of hydrothorax, 1.

In 1828, 8 males and 1 female, and in 1829, 16 males and 3 females died on the third day after admission, total 28; namely, of asthma, 5; of nervous fever, 4; of apoplexy, 3; of the same following delirium tremens, 1; of inflammation of the lungs and heart, 1; of strangulated hernia, 1; of fractured skull, 4; of abdominal tumour, 1; of disease of the heart, 1; of neglected inflammation of peritoneum, (male,) 1; of hydrothorax, 1; of nervous fever with gangrene of tongue, 1; of abdominal inflammation, 1; of fracture, 1; of nervous fever with effusion in the brain, 1; of old age, 1.

In 1828, 13 males and 7 females, and in 1829, 9 males and 4 females died on the fourth day after admission, total 33; namely, of pneumonia, 2; of old age, 4; of nervous fever, 8; of dropsy, 2; of hydrothorax, 2; of asthma, 4; of strangulated hernia, 1; of fracture, 1; of abdominal inflammation, 1; of apoplexy, 2;

of the same following delirium tremens, 1; of pleurisy, 1; of chronic diarrhœa, 1; of peritonitis, (male,) 1; of fractured skull, 1; of epilepsy, 1.

In 1828, 6 males and 6 females, and in 1829, 13 males and 2 females died on the fifth day after admission, total 27; namely, of nervous fever, 4; of delirium tremens, 1; of compound fracture, 4; of asthma, 8; of apoplexy, 2; of nervous fever with pleurisy, 1; of chronic hepatitis, 1; of atrophy, (child,) 1; of cancer of the stomach, 2; of amentia, 1; of wound of the chest, 1; of dropsy, 1.

In 1828, 4 males and 4 females, and in 1829, 15 males and 2 females died on the sixth day after admission, total 25; namely, of abdominal inflammation, 2; of compound fracture, 1; of peritonitis, (male,) 1; of asthma, 5; of pneumonia, 2; of cerebritis, 1; of nervous fever, 4; of old age, 1; of paralysis of lungs, 1; of apoplexy, 3; of dropsy, 1; of scrofula, 1; of palsy, 1; of fractured skull, 1.

Making a total of 182 who died within the first six days after admission; namely, 135 males, and 47 females.

The next section of the report is devoted to "particular remarks on certain of the patients and diseases treated in the medical wards." This section contains a brief notice of interesting cases, dissections, and particular modes of treatment; presenting a collection of very important and useful facts. This is succeeded by tabular monthly reports of the patients treated for mental affections. The next section contains a series of interesting and valuable "remarks on the cases treated in the surgical wards;" and the report closes with lithographic tables, showing the number of patients admitted each month during the two years, their diseases and sex, and the termination of each case;—a tabular view of the operations performed, with their results, and of the number and kind of baths made use of. We have perused with a very great degree of pleasure and instruction the entire report, and we could wish that a plan somewhat similar to that upon which it is drawn up, were adopted for the reports of our own medical institutions.

D. F. C.

XVIII. *The Cyclopedia of Practical Medicine and Surgery, a Digest of Medical Literature.* Edited by ISAAC HAYS, M. D. Part II. Philadelphia, Carey, Lea & Blanchard, 1833.

The second number of the Cyclopedia of Practical Medicine, which has just made its appearance, is, we think, calculated to sustain and even to elevate the character of that work, and to insure it a sufficient share of patronage. It contains not less than ninety-five articles. Many of these are necessarily short and comparatively unimportant. Nevertheless they could not be excluded without greatly impairing the utility of the work, to which the possessor will naturally look for an explanation of all the terms he meets with in the course of his professional reading. Several other articles, on the other hand, are of considerable length, and written with care and talent, as well as with due regard to the importance of their respective subjects.

Among the writers of these latter articles, we find Drs. Harris, Jackson, Wood, Bache, Condie, R. Coates, Emerson, Griffith, and Hays, of this city, and Professor Geddings of Baltimore. To the first of these gentlemen we owe the conclusion of the excellent article *Abscess*, the commencement of which ap-

peared in the first number. The value of this article leads us to hope that Dr. Harris will consent to enrich the succeeding numbers of the Cyclopedia with the results of his experience in the department of the healing art to which he has more particularly directed his attention. For the next article of importance we are indebted to Dr. Jackson. The subject is *Absorption*. In this article, which occupies ten pages, and contains an abstract of the author's views, and not a mere detail of the opinions of other physiologists, Dr. Jackson considers the process not as a functional action, but in the light of a vital and organic phenomenon, on the ground that absorption is a property attached to every particle of organized structure, and not the office of an especial organ or apparatus. It would not comport with the nature and object of this notice to inquire how far this view of the subject is founded; and we will, therefore, content ourselves with remarking, that it does not appear to us likely to meet with the assent of all physiologists, some of whom may object, that as in every portion of animal matter, whether membranous or parenchymatous, soft or hard, the process is performed by, or carried on in, certain vessels; and as it has for its effect not merely the transmission of all fluids indiscriminately in their original form, and with their original characters; but the taking up of only particular fluids, and the conversion of all structures into these, it may well be regarded as the function of the vessels to which we have alluded. This objection is the more entitled to regard, as the action of the minute extremities of those vessels, and of the ultimate particles of animal tissue where the process commences, has not as yet been determined in a satisfactory manner, and as the latter is only known by its effects, and by its products being found in the vessels in question. But however this may be, Dr. Jackson considers the process under the following arrangement. 1st. The seat or location of absorption. 2d. The mechanism of absorption. 3d. Its physiological, therapeutical, and pathological relations.

In conformity with this arrangement, he examines the process as it manifests itself in the skin, mucous membrane, cellular tissue, serous membrane, vascular tissue, and lastly, in the interstitial, intimate and parenchymatous structure. In reference to the mechanism of absorption, Dr. Jackson, after examining the doctrines which refers the process to the lymphatics or to the veins exclusively, remarks, that metaphysicians by a *mental abstraction* have made solidity and impenetrability properties of matter. This, however, he considers as a mere scholastic subtlety.

“So far as matter can be brought to our positive knowledge by the senses, porosity and penetrability are its constant properties. We have what may be regarded as almost the demonstration of the fact in the experiments of *Graham* and *Dalton*, but more especially in the very ingenious experiments of our intelligent collaborator, Dr. J. K. Mitchell of this city, exhibiting the penetrativeness of gases; and in the experiments of Dutrochet on the endosmose and exosmose of fluids through animal and vegetable tissues.” “It may be inferred from these experiments, that whatever may be the properties of matter in its ultimate atoms, of which we know nothing, that *bodies*, whether inorganic or organic, are porous and penetrable by some other substances or matters. This property is not a mere passive one, but is active and incessantly in action, although exercised with different ratios in respect to different bodies. All bodies

are consequently absorptive, actively imbibing, or respiring in ratios definite for each substance."

The whole article is highly creditable to the author, and will, we are sure, be read with great interest by the votaries of physiological science. But while saying thus much, we are far from feeling disposed to coincide with Dr. Jackson in his theory of the mechanism of absorption. However important a part imbibition may be thought to play in this process, we cannot consent to admit that absorption, considered in the whole, is not something different from the former. This we would infer from the circumstances that its main products, however mixed they may sometimes be with foreign substances, are always fundamentally the same, that they are always found in certain order of vessels, and that whenever tumours, &c. are absorbed, their products are carried in these vessels with the other products we have alluded to. Besides, we are not sure that imbibition takes place in the living body, as generally, and to the extent that would be required in order to account by means of it alone for the phenomenon. Were it to do so, we should find lymph circulating in arteries or veins, arterial blood in veins and lymphatic and venous blood in arteries and lymphatic, instead of each of these fluids being limited to its respective vessels; the parenchymatous structure would be drowned in all sorts of fluids, and the membranous cavities would always be more or less filled. For what is it that could prevent those fluids from being imbibed by the coats or extremities of vessels indiscriminately, or by other animal substances? But so far from this being the case, lymph is taken up by, and circulates in lymphatics—venous blood in the veins; and if extraneous fluids sometimes are imbibed by, and pass through parenchyma and membranes, they are soon taken up by vessels whose office it is to shield the important organs from the dangerous effects that might result from the contact of those fluids with their tissues.

The next article to which we shall call the attention of our readers is on *abstinence*. It is written by the editor, Dr. Hays, and presents a full and interesting exposition of the state of knowledge on the subject. The author examines the extent to which abstinence may be carried—the functional and organic changes it produces, the means of remedying its morbid effects, and its advantages and inconveniences as a remedial measure. On each of these topics much valuable information is collected, and the whole is arranged and prepared in a creditable manner; though perhaps without a sufficiently strict regard to the necessity of conciseness.

The articles, *Acacia*, *Aconite*, *Aconitum*, *Acorus*, are from the pen of Dr. Wood, than whom no one in the whole country could have been more properly selected for the confection of the articles on the materia medica. His contributions to the present number will, we are certain, be considered as among the most instructive and interesting in the whole series. An equal degree of praise is due to the articles *acetates*, *acetic acid*, *acetous acid*, for which we are indebted to Dr. Franklin Bache, whose extensive and accurate knowledge of chemistry is universally admitted, and will enable him to do the amplest justice to that department of science, the preparation of articles on which it is, we believe, principally his office to prepare. Nor has Dr. Bache furnished, for the present number articles on chemistry only. The one on *acupuncture* is from his pen,

and is entitled to the highest commendation. Indeed this article like those we have just mentioned, bears the impress of a master's hand. Acupuncture has long occupied the attention of Dr. Bache, who has thereby been able to present us with a most satisfactory and instructive account of the nature and effects of this therapeutic means.

Professor Geddings has furnished four articles, *Acephalus*, *Acervulus cerebri*, *Adipose tissue*, (Anatomy,) *Adipose tissue*, (Pathology.) The first of these is by far the longest in the collection, occupying not less than twenty-eight pages, and will command general attention, from its presenting a luminous and truly learned account of the subject. The author very properly employs the word *acephalous* in the restricted sense in which it has been used by Chaussier and Béclard; confining its application to such monstrous fœtuses as come into the world entirely destitute of a head. His intention is to include those cases in which that portion of the body is partially developed under the terms *Anencephalus*, *Hemicephalus*, &c.

“In all the observations which we propose to make relative to acephalous monsters, we shall consider, first, those in which the head alone is deficient; second, those in which the deficiency involves the upper and lower extremities; those in which the upper portion of the vertebral column is absent; fourth, those in which the inferior portion of the spine is deficient; fifth, those which consist in a defect of a part or the whole of the thorax; sixth, those in which a part of the abdomen is deficient; and seventh, those which are accompanied with an absence of one or more of the organs. The consideration of the subject in this order will lead, in regular succession, to an examination of all the topics of importance connected with the configuration and structure of those organic deviations, and will enable us to appreciate the reciprocal influence of the different organs, to determine their relations, and to ascertain with more accuracy the probable modifications of the laws of the living organism which are instrumental in inducing such a singular departure from the normal type of the individual.”

In accordance with this arrangement, Dr. Geddings passes in review a large number of cases scattered in the writings of professional authors, in which the head was found deficient. 2. He next cites those in which the neck was partially or entirely wanting. 3. Those in which there was a defective development or entire absence of the thorax. 4. Those in which there was an imperfect development or total absence of the abdomen. 5. Those in which there was an imperfect development or entire absence of one or both arms. In a sixth section, he inquires into the state of the abdominal organs in acephalous monsters—*a*, of the organs of digestion; *b*, of the urinary organs; *c*, of the generative or sexual organs. In a seventh section he treats of the condition of the circulatory apparatus; in the eighth, of the state of the respiratory system; a ninth section is devoted to the consideration of the nervous system; finally, in the tenth section, Professor Geddings inquires into the vital phenomena of acephalous monsters.

As may be perceived, the field which the author has travelled is extensive, and the subjects are of the most interesting kind to all physiological readers. It remains to be remarked, that the performance is exactly such as could have been expected from so distinguished an anatomist and medical writer as Dr. Geddings is deservedly admitted to be. The only reproach that might be made

to this article is founded on its great length; but this defect, if defect it be, is redeemed by the valuable information—much of which would be difficult of access to most physicians in this country, which it has enabled the author to lay before his readers.

There are several other articles of great merit in the present number, and which will no doubt be read with interest. Among these we shall particularly cite *Acclimatement* by Dr. Griffith, *Acne* by Dr. Emerson, and *Acrodynia* by Dr. Condie. But agreeable as the task would doubtless be to us, we cannot enter into any details on the subject of these articles; our object being, not to offer an analysis of the work, but rather to call the attention of our readers to a few of the leading portions of its contents, and assert its claims to the patronage of the profession.

On the utility and merits of every literary enterprize, it is natural to expect that some difference of opinion will exist; and we can see no reason to hope that the present undertaking will meet with a more universal approbation in these respects than other works of the same kind. The favourable opinion that may be expressed of its contents will therefore be sure to encounter the opposition of some other readers. For our part, however, we do not hesitate to express the belief, that the number of the latter will be very limited, and that the majority of those who examine the work will join us in sentiment, that it cannot fail to prove highly useful to physicians at large on this side of the Atlantic; and that judging from the preceding and the present numbers, as well as from the reputation of the gentlemen whose coöperation has been secured, it will do honour to the medical profession in this country and compare advantageously with the several dictionaries and cyclopedias of the same nature and size which have appeared in Europe in the course of the last twenty years.

L.

XIX. *An Essay on the Yellow Fever*. By J. GILLKREST, M. D. Deputy Inspector General of Army Hospitals. From the Cyclopædia of Practical Medicine. London. 1832. 8vo. pp. 39.

A treatise on the yellow fever calculated to conduct the reader to a correct acquaintance with its nature and treatment, should present a careful analysis of those symptoms most constantly present in the different forms of the disease, and a very full detail of the post mortem appearances detected by personal observation, or recorded by such writers as have had an opportunity of studying the disease in the different parts of the world, where it has prevailed most extensively. At the same time a careful collection of all the well-attested facts connected with the origin of the fever, the climates, localities and seasons in which it most constantly appears, and the individuals most liable to its attacks, would point out its remote and exciting causes, and more effectually settle the question of its contagious or non-contagious character, than the most copious citation of the discordant opinions that have been pronounced on this point by different writers, and often from the most imperfect data. Had the plan here indicated been pursued by Dr. Gillkrest in the essay before us, the reader, in place of rising from its perusal, as he now must, with vague and confused

views of many points in relation to the history, nature and treatment of yellow fever, would be placed in possession of all the positive information the profession has as yet been enabled to acquire of the causes and pathology of this important disease, and the remedies that have been found best adapted to its treatment. It is scarcely worth the trouble of any one to collect authorities to prove that yellow fever assumes frequently a remittent, as well as a continued form, and yet this is a subject upon which Dr. G. places so much importance, that he enters upon it at the very commencement almost of his essay. The mere fact of a disease being continued or remittent is but of secondary importance in the study of its pathology. The chief inquiry should invariably be into the nature, seat and extent of the local affections by which it is accompanied, for it is from a knowledge of these mainly that our therapeutical indications are to be derived.

We confess that throughout we have been very much disappointed in the essay before us; in which we expected to have found a condensed but accurate account of yellow fever, and a full exposition of the present state of medical knowledge on the various points connected with it. We do not mean to say that the essay does not contain much valuable information in relation to the history and general characteristics of the yellow fever as an epidemic; but, we ask, what definite idea can be formed of the disease from the confused list of symptoms which the author presents; or of its real nature from the imperfect, or we should rather say incorrect account furnished by him of the morbid appearances presented on dissection, and the vague language he employs when speaking of its pathology?

It will scarcely be believed by American physicians, that in an essay on the yellow fever, published within the last year, it is denied, most positively, that any unquestionable traces of inflammation of the mucous membrane of the stomach are to be detected after death from that disease. Nevertheless this denial is made in this positive manner by Dr. G. Can it be that he is actually ignorant of the facts in relation to this subject recorded by Hume, Chisholm, Physick, Cathrall, Hunter, Deveze, Currie, Pym, Miller, Ramsay, Jackson, Waring, Johnson, and a host of other writers? All of whom bear testimony of the inflamed and even gangrenous condition of the stomach, in subjects who have fallen victims to the yellow fever; or is he prepared to deny the correctness of these gentlemen's observations, or the honesty with which they are reported? Whatever opinion we may form of the nature of yellow fever, its almost invariable connexion with gastric inflammation is a fact placed beyond the possibility of a doubt.

Equally unsatisfactory with his account of its pathology are the remarks of Dr. G. upon the treatment of yellow fever. Of the most important remedy in this disease; the only one in fact, upon which any reliance is to be placed in the greater number of cases, namely, bleeding; he states that the weight of evidence is against its general adoption, even where *prima facie* it would seem to be indicated. In direct contradiction of this statement, a "weight of evidence" might readily be adduced, equal at least to that in favour of the employment of direct depletion in any other form of fever. Rush, Physick, Griffiths, Currie, Miller, Waring, together with the great body of the profession in this

country, have found it to be the most effectual remedy when early resorted to, and carried to a sufficient extent; and among the physicians who have treated the disease principally in the West Indies, and the Mediterranean, a similar estimate of the remedy is made by Jackson, Chisholm, Johnson, Boyd, Musgrave, Robertson, Belcher, Burnet, Gibson, and indeed by the major part of all the European physicians who have studied the disease with any degree of attention. Even while Dr. G. expressed his most decided disapprobation of the remedy, he would have dealt more fairly by his readers, had he presented them with the important testimony which has been adduced by so many and respectable writers in its favour: a remark of a contrary nature may be made in reference to the author's account of mercury as a remedy in yellow fever, in this the strongest testimonies in favour of its use are adduced, and all the objections that have been brought against it are passed over in silence.

The only part of the essay in which the conclusions of Dr. G. will meet with very general approval in this country, is that on the non-contagious character of yellow fever. A doctrine which Rush was among the first to establish on correct principles, and the truth of which has been corroborated by all the well-authenticated facts subsequently collected in relation to the origin and spread of the disease in every country where it has made its appearance.

D. F. C.

XX. *Workingmen's Library*. No. IV. Vol. I. *On the Treatment of Infants*. By a Lady. Boston, 1833. pp. 48.

Gallantry is among the few qualities of generous youth, still cherished at mature age, which even the critic with his assumed superiority is fain to exercise, however awkward its observances may be to him when elevated on his stilts; and we actually flatter ourselves with retaining a due share of it, though its display may seem incongruous with our elbow-chair dignity. To boast of its possession on the present occasion, however, would appear too like the blusterings of a coward, inasmuch as there is no demand for its exercise, since to speak favourably of the little work under notice is to do mere justice to the authoress. It really contains more sound and judicious advice than half the bulky tomes on the same subject. The authoress has confined herself to those points upon which a lady is competent to instruct, and in relation to which popular instructions may be safely given; thus showing equal good sense in the topics she has selected and in the manner she has discussed them. Her little volumes may be commended to the attention of mothers.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *New Membrane in the Eye*.—GEORGE H. FIELDING, Esq. in a communication to the British Association for the Advancement of Science, endeavours to prove that immediately behind the retina and in connexion with it, there is a coloured membrane of a peculiar nature, distinct from the *pigmentum nigrum*. The eyes taken for the purpose of experiment were those of the ox and the sheep, in each of which the part in question, of a fine blue or green colour, appears at the back of the globe of the eye, immediately in contact with the retina, having behind it the true pigmentum. To prove the difference between this membrane and the pigmentum, the author quotes Dr. Young's account of the latter, in which it is described as composed of mucous and carbonaceous matter, as staining white paper, and easily removable from the choroides by washing it with water and a soft pencil; but according to the author, the membrane in question will not stain white paper, nor will it part with its colour on the application of water. Its surface is bright and polished, and varies in colour according to the angle under which it is viewed, and according as it is examined by reflected or transmitted light. A portion of it, which was of a pale blue by reflected light, appeared of a yellowish red by transmitted light; dipped in dilute sulphuric or muriatic acid, or in solution of ammonia, its colours begin to fade; if it is then plunged into cold water, they entirely disappear; if again into the acids or alkali, they reappear as bright as ever. The author infers that the colours depend not on any peculiar secreted matter, but on the general laws for thin plates.

Examined with a fine achromatic microscope of Chevalier's construction, blood-vessels, and even the red globules contained in them, were visible in the membrane. By careful dissection in water, it is separable in distinct layers from the choroid. Its colour is frequently different in the same species of animals; it is usually blue in the ox, the pigment in the same animal being of a rich brown; in the cat and fox the membrane is of a golden yellow, the pigment a rich black; in the deer the membrane is pale blue, but the pigment a light brown.

The author proposes to name the subject of his researches *Membrana versicolor*; he enters into some considerations concerning its probable use in the act of vision, suggested by its low reflecting power and immediate connexion with the retina; and supposes that vibrations are excited in it by the converging pencils of light, and that these are communicated to the contiguous retina, and thus transferred to the brain.—*Second Report of the British Association for the Advancement of Science*.

2. *Hermaphroditism*.—The following singular variety of hermaphroditism was communicated to the Academy of Medicine at their meeting of the 5th of March last, by M. BOUILLAUD. The subject of it was a person sixty-two years of age; by trade a hatter, stating himself to be a widower, and who died of cholera in the hospital La Pitié. No suspicion was entertained of the patient not being a male until upon opening the body a uterus was discovered. The following are the results of a careful dissection made by M. Manec. The penis was of ordinary size and well-formed, having a glans and prepuce; the meatus urinarius was not exactly in the centre of the glans, but somewhat nearer its lower part; the scrotum was rather small, but otherwise quite masculine, being brown and puckered, divided by a longitudinal raphe, and shaded with hair; there was however no trace of testicles; nothing but such cellular tissue as we find in the labia pudendi, or nymphæ. The mons veneris was fuller and more prominent than in man; the internal organs were two ovaries, two fallopian tubes, and a well-formed uterus, of the usual size in the virgin state, and situated between the rectum and bladder; it opened by a regular os tincæ into a vagina, which was of an average size, and two inches in length; where the vagina was close to the neck of the urinary bladder, it suddenly contracted, and at the membranous portion of the urethra it was reduced to a very small tube, which after turning upwards opened by an orifice of the diameter of about two millimetres, into the membranous portion, so that the urethra was in fact the continuation of the vagina. Beyond the opening, the urethra had all the characters of the male one; at the neck of the bladder it was surrounded by a prostate; and a distinct verumontanum, with the orifices of the prostatic ducts opening at its side, was found. The corpus spongiosum urethræ, and the two corpora cavernosa penis were of the usual size and appearance; the acceleratores urinæ were very large; Cowper's glands also existed. There was no trace of testicles, vasa deferentia, or vesiculæ seminales; a sort of round ligament passed through the inguinal canal. The patient had a thick beard, and the general form of his body was intermediate between that of the two sexes.—*Journal Hebdomadaire, March, 1833.*

3. *Anatomical Anomaly*.—A recent No. of the *Transactions Médicales* contains a notice of an infant which lived fourteen days, and exhibited no signs of cyanosis, and in which not only was the foramen ovale largely open, but the pulmonary artery, after having given off its branches to the lungs, curved round to the left side, and was continued down along the vertebral column in the place of the descending aorta which was wanting. The aorta arose as usual from the left ventricle, and ascended towards the neck, where it bifurcated.

4. *Bilobed Uterus*.—M. MOREAU exhibited to the Academy of Medicine at the sitting of the 15th of January last, a uterus completely and equally divided laterally: the two halves were separated by a double partition. Each half was provided with a tube and ovary; and had distinct necks opening into a single vagina. The woman died after delivery; the foetus was a male, and had been developed in the left cavity.—*Rev. Méd. Feb. 1833.*

5. *Bilobed Urinary Bladder*.—At the same meeting M. VELPEAU exhibited a specimen of a bilobed urinary bladder. The subsidiary pouch was small and situated posteriorly, and communicated with the anterior one by an opening near the triangular space at the inferior portion of the bladder. A calculus was found in the anterior pouch, which could not have been extracted except by the high operation, as the incision in the lateral mode must have been made into the posterior pouch.—*Ibid.*

6. *Open Foramen Ovale*.—Of thirteen cases of this kind examined by M. PIGEAX, two only of them were accompanied with cyanosis.—*Rev. Méd. March, 1833.*

PHYSIOLOGY.

7. *Physiological Effects of various Gases upon the Animal System.*—In our fourth volume, p. 479, we noticed the experiments of Mr. BROUGHTON on the physiological effects of oxygen gas upon the animal system. Mr. B. has since instituted some comparative experiments with various other gases; and the following are their results, as communicated to the British Association for the Advancement of Science at their second meeting. In nitrous oxide, excitement followed by debility, bright redness of the interior of the body, long-continued action of the heart and intestinal canal after sensibility has ceased, and generally effects very similar to those produced in oxygen, took place in a much shorter space of time. Young rabbits are affected in little more than a minute, sparrows in four or five minutes; cold-blooded animals remain a long time unaffected, but ultimately die; a kitten left in the gas half an hour was past recovery.

With regard to other gases, the author states his experience to be at variance with a prevailing notion that they are all incapable of entering the lungs, from a closing of the epiglottis simultaneously with the first-drawn inspiration. About thirty seconds of time are sufficient to manifest the effects of chlorine when the animal falls down insensible. If immediately opened, the heart is found palpitating, and the peristaltic movements going on. This gas is traced into the lungs both by their deep yellow tinge and acquired odour, and the brain likewise smells strongly of it.

Sulphureted hydrogen destroyed sensibility in about half a minute, and in two minutes and a half the heart still palpitated. The lungs and brain exhibited a dark brown tint, and smelt strongly of the gas.

In the other gases, animals do not remain unaffected so long as a minute, and contractility is not preserved, as in experiments with oxygen and nitrous oxide, although the period of its surviving sensibility and the motion of the diaphragm may vary a little. All the gases experimented on probably passed into the lungs, with the exception, perhaps, of the carbonic acid gas, immersion in which is borne without any very sensible effects during nearly three minutes, when the animal struggles, and falls down insensible, the blood appearing very dark-coloured, and the heart still and flaccid. From these results, the author extends his deduction of the poisonous character of oxygen in excess to the other gases which enter the lungs, and remarks on the specific analogy which obtains between the effects of nitrous oxide and fermented liquors.—*Second Report of the British Association for the Advancement of Science.*

8. *On the Effects of Compression and Dilatation upon the Retina.* By Sir DAVID BREWSTER.—In repeating many times the well known experiment, particularly described by Newton in the sixteenth query at the end of his Optics, of the production of light by gentle pressure upon the eye-ball, or a stroke upon the eye, Sir David Brewster saw reason to correct the statement of Newton, that “the colours vanish in a second when the eye and the finger remain quiet,” having found them to continue as long as the pressure is kept up. With respect also to the character of the light thus produced in the eye, the author’s experience has only shown him *black* and *white* circles, with a general red tinge arising from the light passing through the closed eye-lids, whereas Newton speaks of the colours as like those in the feather of a peacock’s tail.

The author states,—when a gentle pressure is first applied, so as to compress slightly the fine pulpy substance of the retina, a circular spot of colourless light is produced, though the eye be in total darkness, and have not been exposed to light for many hours. If light be now admitted to the eye, the compressed part of the retina is found to be more sensible to the light than any other part, and consequently appears more luminous. Hence it follows, that a slight compression of the retina increases its sensibility to the light which falls upon it, and creates a sensation of light when the eye is in absolute darkness.

If we now increase the pressure, the circular spot of light gradually becomes darker, and at last black, and is surrounded with a bright ring of light. By augmenting the pressure still more, a luminous spot appears in the middle of the central dark one, and another luminous spot diametrically opposite, and beneath the point of pressure. Considering the eye as an elastic sphere, filled with incompressible fluids, it is obvious that a ring of fluids will rise round the point depressed by the finger, and that its pressure from within outwards will *dilate* the part of the retina under the finger which was formerly compressed, and will compress all that part of the retina in contact with the elevated ring. An increase of pressure will be resisted by the opposite part of the retina, and will thus produce a compression at both extremities of the axis of pressure, occasioning the diametrically opposite spot of light, and also the luminous spot in the middle of the circular black space. Hence the author concludes, that *when the retina is dilated under exposure to light, it becomes absolutely blind or insensible to all luminous impressions.*

These properties of the retina often exhibit themselves involuntarily, with different variations, according to the state of sensibility of the retina, in consequence of the movement of the eye-ball by its own muscles during the act of sneezing, and on other occasions.

The phenomena above described are those produced in the parts of the retina which are most affected by any given pressure: but it is obvious that this pressure is propagated over the whole retina; and even when it is too weak to produce a luminous impression, it may yet modify other impressions previously produced on the retina. If, from looking at the sun, the eye sees a *pinkish-brown* spectrum, a pressure upon another part of the retina will change it to a *green* spectrum, which, when the pressure is removed, will again become *brown*. If the pressure is such as to diminish the sensibility of the retina, it will either diminish or entirely remove a weak spectral impression.

When the eye is pressed in front, by putting the finger on the eyelid above the cornea, no luminous spectrum is seen, and the author did not venture to increase this pressure so as to produce an impression on the *back* of the eye. He however mentions a case where this effect was produced accidentally. A person, in a state of intense grief, had been sitting for some time with his hand pressed against his eye;—the moment his hand was removed, and the eye opened, a black spot, the size of a sixpence, was seen in the axis of vision. The pressure of the blood-vessels upon the retina, in particular states of indisposition, occasion floating masses of light, visible in the dark, at first *faint blue*, then *green*, then *yellow*, and sometimes even *red*, all these colours being occasionally seen at the edge of the luminous mass.

The preceding observations on the influence of dilatation in making the retina insensible to light, render it extremely probable that the disease in that membrane, called *amaurosis*, may sometimes arise from a general distention of the eye-ball, arising from a superabundance of the fluids which it incloses. If this be the case, the removal of the pressure might be effected by puncturing the eye-ball, (when this can be done with safety,) and letting out a portion of the aqueous humour. How far such an operation would be effectual when the disease is of long standing, can be determined only by experiment.—*Ibid.*

9. *On the Undulations Excited in the Retina by the Action of Luminous Points and Lines.* By Sir DAVID BREWSTER.—In this communication the author considers a variety of cases when light affects other parts of the retina than those on which it directly falls,—either by rendering them more or less sensible to light and particular colours, or by altering the tints which are visible there, or by the excitement of undulations in the retina from the illuminated part. The following are the results of Sir D. Brewster's experiments on the last of these phenomena, as exhibited by the action of luminous points and lines.

1. If we look through a narrow aperture, about the 1-50th of an inch wide, at a bright part of the sky, or at the flame of a candle, we shall observe the

luminous ground covered with a great number of broken parallel lines alternately light and dark. These lines are always parallel to the narrow slit, and of course change their place as the slit is moved round before the eye. Through a number of parallel slits, such as between the teeth of a comb, the broken parallel lines are seen more distinctly; and if we give the comb a motion oblique to the direction of its teeth, the broken lines become more distinct, though less straight than before, and new black lines appear, lying in different directions, as if they were detached portions of a number of dark ramifications. All these phenomena are seen more distinctly when we look at homogeneous light. If we use two systems of narrow slits, and cross them at different angles, we shall perceive two systems of broken lines crossing each other at the same angles; and if when the lines of the two systems are parallel we give one of them a rapid alternating motion perpendicular to the direction of its slits, the parallel broken fringes are seen with peculiar distinctness.

2. Phenomena analogous to those now described may be seen by looking at a number of parallel black lines drawn upon white paper, such as those which represent the sea in an engraved map, or by looking at the luminous intervals in a number of parallel wires seen against the sky. If the eye looks at any of these objects steadily and continuously, the black lines soon lose their straightness, and their parallelism, and inclose luminous spaces somewhat like the links of a number of broken chains. When this change takes place, the eye which sees it experiences a good deal of uneasiness,—an effect which is communicated also to the eye which is shut. When this dazzling effect takes place, the luminous spaces between the broken lines become coloured, some with yellow and others with green and blue light.

The phenomena produced in these two experiments are obviously owing to *rectilineal undulations propagated across the retina*; and the interference and crossing of the undulations, by which the dark lines are broken into detached portions, and by which the colours are produced, arise from the unsteadiness of the head or the hand, which causes a want of parallelism in the successive undulations.

3. The action of small and bright points of light upon the retina produces phenomena of a very interesting kind. If we look at the sun through a small aperture at a great distance from the eye, or if we look at the diminutive image of the sun formed by a convex lens or a concave mirror, or seen in a convex surface, the light which falls upon the retina does not form a sharp and definite image of the luminous point, but it sends out in all directions an infinity of radiations, covering in some cases almost the whole retina. These radiations are extremely bright, and are accompanied in some cases by mottled colours of great variety and beauty. The bright point of light propagates around it circular undulations, which are broken and coloured by interference, and which, being in constant motion from the centre of the retina in all directions, occasion the radiations which have been mentioned.

4. If we look at the radiant image just described through a narrow aperture, a very singular effect is produced. A vortex of circular rays appears on each side of the radiant point, and the rays have a rapid whirling motion. The line joining the centres of the two vortices is always perpendicular to the narrow aperture. This remarkable configuration of the rays is evidently produced by the union of a system of parallel undulations with a system of circular ones, the intersections of the parallel fringes and the diverging radiations forming the circular rays, as in the case of ordinary caustics.*

The preceding phenomena, continues the author, whatever be their true cause, clearly prove that light incident upon the retina exerts an action on parts of it upon which it does not directly fall, and that the same action renders other parts of the retina insensible to the light which actually falls upon these parts.

* Caustic curves, see Brewster's Optics, Am. ed. p. 58, et seq.—Ed.

Upon this principle the author explains the experiments of Mr. G. Smith of Fochabers, in which the same object appeared, under certain conditions of vision, of different colours to the different eyes, the colour observed by the one eye being complementary to that observed by the other. He also refers to the same general principle of undulations propagated across the retina, for an explanation of the remarkable experiment on the eye, first made known by Dr. Purkinje of Breslau.

In this experiment, if a candle be held before one eye, at about a foot distance, and in a direction deviating a little from the line of distinct vision,—that eye sees a general mass of reddish light around the candle, and in this light, as a ground, are seen the ramifying blood-vessels of the retina, the base of the optic nerve, and the *foramen centrale*. Sir D. Brewster states it to be the most prevalent opinion, that the light which surrounds the candle is reflected back upon the retina, either by the inner concave surface of the crystalline lens or of the cornea; and that the objects are, somehow or other, magnified by these concave surfaces. His own view of the subject is, that the light was propagated from the luminous image of the candle, and that though the retina, in contact with the blood-vessels, is sensible to direct light, it is insensible to propagated light, and therefore the blood-vessels must be delineated in obscure lines. As there is no retina across the *foramen centrale*, it will of course appear as a black spot; and, owing to the obtuse vision of the optic nerve, it will appear less luminous than the surrounding retina.

After the reading of Sir David Brewster's paper, Mr. Wheatstone said, that having been the first person to introduce Purkinje's beautiful experiment into this country, and having repeated it a great number of times under a variety of forms, he would take the opportunity of stating a few particulars respecting it, which appeared not to be generally known.—The experiment succeeds best in a dark room, when, one eye being excluded from the light, the flame of a candle is placed by the side of the unshaded eye, but so as not to occupy any of the central part of the field of view. So long as the flame of the candle remains stationary, nothing further occurs than a diminution of the sensibility of the retina to light; but after the flame has been moved upwards and downwards, through a small space, for a length of time, varying with the susceptibility of the individual on whom the experiment is tried, the phenomenon presents itself. The blood-vessels of the retina, with all their ramifications, exactly as represented in the engravings of Sæmmerring, are distinctly seen, apparently projected on a plane before the eye, and greatly magnified. The image continues only while the flame is in motion; directly, or soon after, the flame becomes stationary, it dissolves into fragments and disappears.

Mr. Wheatstone dissented from the ingenious explanation of this appearance offered by Sir David Brewster, and also from that opinion stated to be the generally received one; and begged to repeat the solution he had published, and which he had not since been induced to relinquish. Mr. W. observed, that there was no difficulty in accounting for the image; it evidently was a shadow resulting from the obstruction of light by the blood-vessels spread over the retina; the real difficulty was to explain why this shadow is not always visible. To account for this, Mr. W. adduced several facts, which tended to prove *that an object, either more or less luminous than the ground on which it is placed, when continuously presented to the same point of the retina, becomes invisible; and the rapidity of its disappearance is greater as the difference of luminous intensity between the object and the ground is less; but by continually shifting the place of the image of the object on the retina, or by making it act intermittently on the same point, the object may be rendered permanently visible.* To apply this explanation to the phenomena in question, Mr. W. observed, that whenever the flame of the candle changes its place, the shadows of the vessels fall on different parts of the retina; which is evident from the motion of the figure while the eye remains still, which is always in a contrary direction to that of the flame. Hence the shadow, being thus made to change its place on the retina, remains, according

to the law above stated, permanently visible; but instantly the flame is at rest, the shadow also becomes stationary, and consequently disappears.

Mr. Wheatstone then exhibited an instrument for showing an original variation of this experiment: it consisted of a circular plate of metal, about two inches in diameter, blackened at its outer side, and perforated at its centre with an aperture about as large as an ordinary gun-hole; to the inner face was fixed a similar plate of ground glass. On placing the aperture between the eye and the flame of a candle, and keeping the plate in motion, so as to displace continually the image of the aperture on the retina, the blood-vessels will be seen distributed as before, but will now appear brighter, and the spaces between the ramifications will be seen filled with innumerable minute vessels, anastomosing with each other in every direction, which were invisible in the former experiment. In the very centre of the field of vision there is a small circular space, in which no traces of these vessels appear. Mr. W. remarked, that the absence of these minute obstructions to light will probably account for the greater distinctness with which small objects are there seen, and also for the difference of colour observed by anatomists in that spot of the retina.—*Ibid.*

10. *Satyriasis Produced by a Blow on the Occipital Region.*—M. CHAUFFARD, of Avignon, relates in the *Transactions Médicales* for April last, the case of a man, fifty-three years of age, of mild character, who, after a fall in his chamber, in which he struck violently the lower part of his occipital region against an angle of his bed, which produced a swelling, was seized with incessant and violent satyriasis and so great salacity that he tried to have connexion with every woman that came in his way even with his own daughters.

11. *Case of Paraplegia accompanied with complete Constipation, and the Suppression of Urine for Fourteen Years.*—This extraordinary case was communicated to the Academy of Medicine at their meeting of the 26th of July last, by Sig. MONTE-SANTO, of Padua. Several years before the accession of the paralytic symptoms, the patient had sustained a fall from a height upon his back; none of the vertebræ were fractured, but the concussion had been so severe, that he never recovered entirely from its effects. For fourteen years his appetite was strong, and he eat his food heartily; after each meal, he drank largely of water, and after the lapse of two hours, he felt obliged to take another large draught, in order to induce the vomiting of such food as he had swallowed; this painful operation recurred every day, from two to five hours after eating. About once a month, he had the sensation of, as it were, a ball, which rose from the stomach to the mouth; this lasted for four hours or so, and then a large quantity of feculent matter, mixed with blood, was vomited. On no occasion was there the least appearance, not even any smell, of urine in these egesta; the renal secretion seemed to be quite suppressed. Since March, 1829, the fecal vomitings have never occurred; but each repast is rejected more quickly after it has been swallowed than before. The digestion and assimilation of the food still, however, go on perfectly well, for the patient has of late become so plethoric, that he has repeatedly required bleeding. He still lives, and Drs. Graefe and Frank have visited the individual, and confirm the accuracy of the above statements.

A similar case was communicated to the Academy, in 1823, by M. Denis. There was no evacuation per anum, or excretion of urine, for seventy-two years. Probably the kidneys had become atrophied.

12. *Two Extraordinary Cases of Fasting.*—Dr. SCHMALZ, of Dresden, in a former No. of Hufeland's Journal, has related two very singular examples of abstinence from all food, protracted for an almost incredible length of time. We must remember, however, that he saw both individuals, and had an opportunity

of personally ascertaining the particulars, and moreover the first case was the object of a Government inquiry.

Angelica Vlies was born in the neighbourhood of Delft, in South Holland, on 20th August, 1787. In her early years her constitution was very feeble and delicate, and she was much subject to cramps, induced by intestinal worms, which she voided both upwards and downwards in great quantities. She enjoyed tolerable health till 1811, about which time she was first seized with violent hysterical paroxysms; during these the bowels were obstinately confined. Subsequently she had repeated attacks of chronic enteritis, and her appetite, which had been throughout very sparing, now began to fail altogether. At one time better, and at another time worse, she continued in the above state till May, 1818, when she discontinued the use of solid food entirely, and took nothing but drinks, chiefly whey. All medicines were rejected by vomiting as soon as swallowed. For upwards of four years she tasted nothing solid, with the exception occasionally of a little fish and salad, which she sucked, but never swallowed. In the Spring of 1822, the attack of hysteria became so violent as to threaten death; an enema was given on the 10th of March; the bowels and also the bladder were then relieved; and this was the last time that any regular evacuation of stool or of urine took place. About this time she refused all nourishment whatsoever, fluid as well as solid; and now the catamenia which had hitherto been regular, although scanty, ceased. She frequently moistened her mouth with a little cold water to abate the burning heat she felt there. In July, 1822, an erysipelas appeared on the abdomen; it was relieved by the constant use of bread and milk poultices. In the following year she had a severe attack of dyspnœa, and fixed pain in the left side of the chest. Her physician, Dr. Grootenbeer, ordered a blister. In 1824 she had repeated seizures of sub-acute arteritis; in 1825 these seizures were neither so frequent nor so severe. In October of this year she voided, after most excruciating suffering, a small quantity of urine and fæces; during 1826 she made urine twice, and at each time only a few drops. Thus, from the 10th March, 1822, to this period she had had relief only once by stool, and three times by urine. The Dutch medical commission were very anxious at this time to induce her to remove to the Hague, in order that an opportunity might be had of strictly inquiring into her case; she would not however consent to this; but permitted four nurses to wait upon her alternately for the space of a month; the expense of their attendance was defrayed by Government. Soon afterwards a memoir was drawn up by Dr. Vorstman, and published at Delft, 1827. According to the authentic reports of the nurses, Angelica took no food, fluid or solid, from Nov. 11th to Dec. 9th. During this time, she used to moisten her mouth with water, tea, or whey; but she invariably spat the fluid out again, and the quantity was thus frequently somewhat increased, and certainly never diminished; she had no evacuation by stool or urine, but had occasionally belchings of wind. During the days, she sewed and amused herself with reading. She rose, or rather was lifted from bed, at 9 A. M. and was carried back at 11 P. M.; but she slept very little, being much distressed with head-ache, swoonings, and cramp. Her age at this time was 41, but her appearance indicated more than 60 years, her face being shrivelled, and her eyes dull and lustreless; her tongue was clean and dry, the skin was parched; the pulse normal in frequency, but exceedingly weak and small; the sensibility of the cutaneous, and perhaps also of the deeper nerves, was so much impaired, that she was scarcely aware of her skin being pinched or pricked. Every hour and a half she was seized with a shivering, followed by a convulsive, lateral agitation of the head; these fits lasted generally for about two minutes.

Dr. Schmalz, (the reporter of the case,) visited her in Sept. 1828, and had an opportunity of being perfectly satisfied with the truth of the preceding statements; she told him that she had not eaten nor drunk any thing since the report of the medical commission, nearly two years before; and if we go back,

we shall find that this extraordinary abstinence had now lasted six years and a half, from March, 1822. The patient told Dr. S. that she would very willingly take food, if she could in any way swallow it, but that this effort was impracticable to her. Here the report ceases, and Angelica was still alive at the date of the report.

CASE II. *History of a Female who lived upwards of 2½ Years without Food.*—Professor Ricci, of Turin, has published a full detail of this case in the *Reperitorio di Medicina, di Chirurgia et di Chimica di Torino*.

Anna Garbero, aged 40, had hitherto enjoyed moderately good health, although her appetite had been always remarkably sparing; her food consisted generally of vegetables only once a day, and the bowels were not usually relieved above twice a week. Gradually the appetite became less and less, and once she passed 40 days without touching any solid or fluid aliment. But it was not till Sept, 1825, that a total inappetite for food came on; it was after a very scanty meal, consisting of only a mouthful or two of cabbage and a draught of wine and water, that she was seized at once with intense gastralgia, which continued for some time, till copious vomiting was induced; from this date she was unable to swallow any thing, and even her spittle was thrown back when she tried to allow it to pass down. Up to the 7th of the succeeding January, she neither eat, drank, nor had any relief by urine or by stool: the only appreciable evacuation was that of the catamenia, which, though very sparing, returned regularly.

Dr. Schmalz visited her at this period; he found her so emaciated, that she seemed a mere skeleton, over which a dry skin had been forcibly stretched. The skin was almost quite insensible to pricking, or to the strongest pressure; the limbs were cold and corpse-like; the pulse small and scarcely perceptible, but not regular in frequency. The patient was quite willing to make an effort, at any time desired, to swallow food, but it was of no avail; and at length the mere sight of any victuals, however simple, brought on most painful vomitings. Things continued so till the end of June, at which time she became insensible and lethargic; this state of apathy continued till the 25th of the following November, when she quite suddenly and unexpectedly recovered her senses and speech. Her strength became weaker and weaker, and finally was exhausted in death on the 19th May, 1828.

The body was examined in the presence of Professors Rolando and Gallo, by whom a very interesting memoir was published at Turin; we give only the more interesting and illustrative details. The omentum majus was found drawn strongly downwards, and had become adherent to the brim of the pelvis, thus leaving the small intestines quite uncovered. This change had been caused by the falling down of the transverse colon, which was lying in the pelvic cavity; it was distended with hard fæces; the small intestines were, on the contrary, contracted to mere cords. On carefully tracing the colon, it was found that the canal of the descending portion was so much obstructed by the swelling of its mucous lining, that the fæces could only with difficulty be forced along; the obstruction was still greater at the commencement of the rectum, and completely prevented the transit of any solid matters. The contents of the ascending colon were more fluid, of a dark green, meconium-like colour, and most intolerably fetid; two lumbrici and several ascarides were found in the bowels.

The rationale or etiology of the preceding case appears sufficiently simple. We conceive that a chronic inflammation of the colon and rectum had been originally caused by exposure to the inclemencies of the weather, for the patient was a beggar; thus, not only was the appetite directly impaired, but also the passage of the feculent matters obstructed, and the general health became more and more deranged in consequence; complete anorexia was the consequence of the accumulation of the fæces; the colon was dragged down by the weight, and, at the same time, the stomach and œsophagus were necessarily displayed in a similar direction, and this displacement must have seriously injured their functions. Besides, traces of a slow inflammation of the mucous

coats of the small bowels, and also of the stomach, were found upon dissection; and our readers need not be reminded of the effects which we daily observe to flow from such a morbid state. In short, we are to regard the preceding case as one of the melancholy results of neglected sub-acute enteritis, originally of the rectum and sigmoid flexure, and subsequently of the rest of the canal.—*Med. Chirurg. Rev. from Hufeland's Journ. der Pract. Heilkunde.*

13. *Professor Weber's Experiments on the Sensibility of the Skin.*—The *Edinburgh Medical and Surgical Journal*, for July last, contains an interesting account by Dr. ALLEN THOMSON, of these experiments. It is a fact well known to physiologists, as Dr. Thomson observes, that there is a considerable difficulty in pointing out with certainty, when unaided by sight, any spot on the skin that has been touched, and in distinguishing how much of the common feelings of touch is due to the sensibility of the skin, and how much is derived from the muscular sensation produced by the motion of our limbs. It is also well ascertained that some parts of the skin are better adapted than others, either from their original structure, or in consequence of their being more exercised, to convey to the mind an exact impression of the physical qualities of the bodies with which they are brought in contact. It must be allowed, however, that our knowledge respecting this part of the physiology of the sense of touch is by no means definite.

Professor Weber of Leipzig has lately performed a very simple and ingenious set of experiments which illustrate the subject of the sense of touch, and furnish us with a mode of measuring with considerable accuracy, the relative acuteness of this sense in different parts of the skin of the same or of different individuals.

These experiments consist in placing the two points of a pair of compasses at different distances from one another, and in various directions, upon different parts of the skin of an individual who is not permitted to see the bodies touching him.* Professor Weber thus found, that, according to the distance of the two points from one another, we may have the feeling either of one only or of two tangent points, and that the distance at which we become sensible of the double impression is in the inverse proportion to the acuteness of the sense of touch in the skin; or, in other words, that we recognise a double impression made on very sensible parts of the skin, although the points are situated very near one another, while in those parts of the skin in which the sense of touch is obtuse, the points may be removed to a considerable distance from one another, and yet convey to us the feeling of only one impression.

Professor Weber has embodied the principal results of his experiments on the varieties in the acuteness of the sense of touch of different parts of the skin in eight propositions, of which the following is an abstract.

Prop. 1. The different parts of the skin or organ of touch do not possess an equal power of distinguishing two bodies by which they are touched at the same time. The distance of the two touching bodies being known, the degree of this power may be measured; for it is ascertained that if the organ of touch does not perceive the contact of two bodies when they are near one another, it becomes sensible to the impressions of both when the distance between them is increased.

If the touching points are sufficiently distant, we not only distinguish the impressions of both, but also the direction, longitudinal or transverse in relation to the body, in which they are applied to the skin. When they are brought nearer to one another they first give the sensation of the contact of a long body, but when brought still closer together they appear as a single point upon the skin.

The ends of the fingers and the tip of the tongue have the power of distin-

* The sharp points of the common compasses may be blunted with a little sealing-wax, which will have the effect also of taking away the cold feeling of the metal.

guishing the distance of two points nearly equal, and in a much greater degree than any other part of the body. At two-fifths of a Paris line we are capable of distinguishing the longitudinal from the transverse position of the points on the tip of the tongue. At half a line two impressions are felt, more especially when the points are made to touch at the same time the upper and lower margins of the tongue, or the dorsal and palmar sides of the fingers; but in most other parts of the body this is different; for

Prop. 2. In many parts of our bodies we perceive the distance and situation of two points touching us at the same time more distinctly when they are placed parallel to the transverse than to the longitudinal direction of the body.

This may easily be tried in the middle of the arm or forearm: here the two points may be distinguished at a distance of two inches when placed in a direction across the arm, but they appear as one at this distance, or even, (in some persons,) at three inches when placed longitudinally.

Prop. 3. In those parts of our body in which the impressions of both points are clearly distinguished, although not distant, the space between these points appears to be greater than in other parts possessing a less sensible touch.

The experiments illustrative of this are very striking. They may be best performed by drawing both the points of the compasses gently along the skin, from a sensible to a less sensible part, or *vice versa*; as from the hand along the fingers, from the cheeks or ear across the lips, and towards the nose; from the jaw to the chin, from the occiput to the sacrum, with a point on each side of the median line, and from the chin to the pubis, in the same manner. In passing over the more acutely sensible parts, the points of the compasses seem to open or to recede from one another, and the reverse takes place in those regions in which the sensibility is obtuse.

Prop. 4. If the points are placed on two contiguous parts which may be moved voluntarily and independently of one another, the double impression is much more clearly perceived, and the points appear more remote from one another, than if at the same distance, they were brought in contact with one entire part. This is easily shown on the lips, fingers, and eyelids.

Prop. 5. We distinguish the two points more clearly, if they are brought into contact with two surfaces having a different structure and use, than when they are applied to one and the same surface.

This rule also holds in respect to surfaces possessing different degrees of sensibility; for in this case also, the points are more clearly distinguished when they touch two contiguous surfaces of different powers, than when they are both placed on the most sensible of them. This may be seen on the lips, by placing one point on the internal, and another on the external surface, in which position the points are distinguished at a smaller distance than in any other, although the surface of the lips directed towards the gums has a much less acute sense of touch than the red part. The same is the case with the white and red external surface of the lips.

To the same general rule may be referred another fact, viz. that a smaller distance of the points is perceptible when they touch at once the palmar and the dorsal surfaces of the fingers, than when they are both applied to one of these surfaces; and it may also be stated, under this head, that this power of distinguishing the points is generally greater when they are applied at equal distances on each side of a median line of the body.

Prop. 6. If we examine attentively the degree of acuteness of the touch in each part of the body, we shall find that this varies not only in the larger parts, but that there are also small spaces, in some of which the sense is more acute, in others in the immediate neighbourhood more obtuse. These points, however, do not vary to a great extent in the degree of their acuteness, nor has Professor Weber discovered any fixed order according to which they are disposed.

This observation would seem to show that the nervous fibriles are not quite equally distributed throughout the skin.

Prop. 7. If we are touched with greater force by one of the points than by

the other, the impressions of both are distinguished less easily; for the stronger obscures the weaker.

Prop. 8. We distinguish two separate impressions more easily when they are not made exactly at the same time; and on this account, in performing all the experiments previously referred to, it is necessary to pay great attention in order to make the contact of both points synchronous.

The cause of the diversity in the sense of touch in different parts of the body is as yet unexplained. It is sufficiently obvious that the greater sensibility of some parts of the body does not depend on their being more frequently seen than others, as some have supposed to be the case; the middle of the back of the hand, constantly exposed to view, is surpassed by the fingers and palm, and even by the lower end of the fore-arm; the same is the case with the dorsum of the foot. The skin over the os sacrum and coccyx, though beyond the range of vision, is comparatively very sensible. The sensibility of the sub-mental surpasses that of the sternal and abdominal regions; and, though the anterior is generally more sensible than the posterior surface of the body, this would appear to be connected with the structure of the skin rather than with the sight, for the sacrum and coccyx are more sensible than the pubis. Examples of blind persons also, and the great improvement their organs of touch are susceptible of from exercise, sufficiently show that sight has very little to do with our power of distinguishing by touch different regions of the skin. Nor does this power appear to depend chiefly on any mechanical advantage of one part over another, as, for example, that some parts are fixed on bones, and others very moveable. The tip of the tongue and free part of the lips which are loose, and the points of the fingers which are fixed, are possessed of nearly equally acute powers of touch.

The cause of these variations is probably to be sought for in the structure of the skin, with which subject we are as yet, as regards the distribution of the nerves at least, very imperfectly acquainted. It seems to be obvious, however, that the great power of touch does not depend on the presence of papillæ, for the mammæ and some other parts with numerous papillæ have yet a very blunt sense of touch. The tongue has papillæ over its whole upper surface; but it is only at the tip that the sense of touch is very acute.

Many experiments seem to show that the direction of the course of the larger and smaller nervous twigs has some influence over the power of the skin, by which we distinguish the separate impressions of the points. The greater power which we have of distinguishing the points in a transverse than in a longitudinal position on the arms and legs, while on the face and some parts of the trunk of the body a position of the points parallel to the longitudinal direction of the body gives the clearest double impression, would seem to show that in general the feeling of the distance of the points is most acute, when they are applied across the direction of the nerves in their course. There are, however, other varieties which cannot be so easily explained in this manner, and it becomes necessary to have recourse to the supposition, that the quantity of nervous matter, as well as the mode of its distribution in the skin, may influence to a considerable extent the acuteness of the sense of touch. Sufficient attention has not as yet been given to this part of the subject.

The effect of motion of our organs, and of the bodies touching them, in augmenting the acuteness of the sensation, is very remarkable. When two points, for example, placed upon the skin appear as one, we can often recognise their double impression by moving the skin. It is thus that by moving the fingers we discover the asperities on surfaces which could not be felt, were the finger held at rest over them. We also acquire a more accurate knowledge of the nature of an impression, by having it made on different parts of the skin in succession. By a peculiar internal feeling, called the muscular sensation, informing us of the extent of muscular contraction, we come to know the direction and space in which our limbs are moved; and every one knows that this feeling is of very considerable importance in aiding the sense of touch, and in improv-

ing that kind of touch frequently distinguished in this country by the term tact. It has already been remarked, that it is not unfrequently difficult to discriminate whether we judge of the qualities of a surface by the sensibility of the skin, or by the muscular sensation. We can in general tell immediately the direction in which any one pulls the hair of our head; but the knowledge of this direction is not derived, as might be supposed, from the sense of touch, but depends on an exertion of the muscles of the head, which is immediately and insensibly made with the view of resisting the motion of the head, which without it would occur. On fixing the whole head, it will be found that the power of distinguishing the direction still remains, though in a less degree. This seems to depend on the position of the skin in the neighbourhood being altered by traction, for when we fix the skin the power of distinguishing the direction in which the hair is pulled entirely disappears.

Another illustration of this is obtained from the following experiment. Shut the eyes, hold the hand steady, and let some one touch your fingers with, and carry along their points various substances, as paper, glass, metal, wood, quill, leather, linen, silk, or velvet; you will be surprised how often you mistake the one for the other, according as they are more or less lightly pressed against the fingers. Metals when of the same temperature as the hand can scarcely be distinguished from glass and other substances with a smooth surface. When the finger of one person is conducted by another into a fluid, the slight pressure over a considerable surface informs him of its presence. If a person draws a plane surface along the finger of another, pressing at first gently, then gradually more strongly, and again gently, the feeling of a convex surface will be communicated to the finger, and that of a concave surface may be given by the greatest pressure being made at each end.

Professor Weber has also instituted some experiments for the purpose of ascertaining how far we are capable of judging of the weight of bodies by the sense of touch in the skin, and how far it is necessary that we should be assisted also by the muscular sensation; for it is obvious that in general we make use of both these means to obtain a correct estimate of weight. He found that when two equal weights* are placed on corresponding parts of the skin, he might add to or subtract from one of them a certain quantity without the person on whose skin they were laid being sensible of any change or inequality in them. He ascertained that when the hand or any other moveable part of the body is laid quite inactive on a table, a much greater change can be made in the relative weight of the two bodies, without its being perceived, than when the limbs are free and capable of muscular exertion: that thirty-two ounces or drachms, for example, may be altered by from eight to twelve, when the hand is motionless and supported, but only by from one and a half to four, when the muscles are in action; and hence Professor Weber infers, that the measure of weight by the touch of the skin alone is more than doubled by the assistance of the muscular sensation.

By these experiments it was found that the lips estimate weight more correctly than any other part of the body: the fingers and toes may be reckoned next, the second phalanx being inferior to the third, and the first to the second: the palm of the hand and sole of the foot, especially the parts covering the ends of the metacarpal and metatarsal bones, possess also a considerable power, while the back, thorax, abdomen, scapulæ, arms, legs and occiput have very little power of estimating weight; which observations obviously show a considerable correspondence between those parts of the skin possessing the most acute sense of touch, and those estimating weights most correctly.

* The weights employed ought to be made of the same material, and must present the same size and form of surface to the skin. In order to insure this, and to correct the difference of temperature, it is well to interpose similarly shaped pieces of pasteboard between the weights and the skin.

PATHOLOGY.

14. *Fungus Hæmatodes of the Bones of the Cranium, Inferior Maxillary Bone, and Liver.*—A female, whose intellectual powers were but feebly developed, and who from her earliest infancy had been subject to epilepsy, paroxysms of which disease came on almost every night, but who in other respects usually enjoyed tolerable health, became irregular in her menstrual discharge in the forty-fourth year of her age. Soon after this period, a small tumour made its appearance upon the inferior maxillary bone. After the lapse of a year, when Dr. HANKEL first saw the patient, this tumour had acquired the size of a hen's egg, was situated upon the right horizontal branch of the inferior maxillary bone; presented a smooth, reddish surface, and was firm, elastic, immoveable, and not attended by pain. The tongue at this time occupied its natural position. Dreading an operation, the patient refused to submit to any subsequent examination until six months had elapsed, at which period the tumour was found to have increased to triple its original size, filling the entire cavity of the mouth, and pushing the tongue out of its habitual position—it had also become rough upon the surface, painful, and evidently divided into two distinct portions. The pain continued to increase, deglutition became more and more difficult, and she died in a short time from inanition.

Post mortem.—Upon raising up the integuments of the cranium, a tumour of some lines in altitude, about the circumference of a quarter of a dollar, and situated upon the right parietal bone, was discovered, it was soft and firmly united to the pericardium. At the point corresponding, within the interior of the cranium, a similar tumour was observed, which had produced by keeping up a continued pressure upon the part, a depression of some lines in depth upon the surface of the brain. The dura mater did not adhere to this tumour, which was covered in a manner similar to the external one by an adherent membrane, which being removed, it was found that it was composed of a substance resembling the inflammatory coat of the blood. By maceration, this soft substance was separated from the bone, which was found covered with spiculæ, and entirely composed of compact substance, the diploic structure having disappeared. At no great distance from this tumour, a portion of the cranium was observed of a deeper colour than the neighbouring parts, and apparently depressed. This was found to be a cavity, situated between the two tables of the parietal bone, the exterior one of which was thinner than usual. There was likewise observed adhering to the pituitary gland, a small body of a bright yellow colour, composed of a substance resembling coagulated albumen. The inferior maxillary bone was luxated, and susceptible of motion at its centre. The tumour was divided into two portions, each one of which equalled the fist in size, they seemed to arise one from the interior surface of the bone, the other from its exterior, and were covered by a white, smooth membrane. Their substance was white, partly fatty, and partly reduced to the consistence of jelly. The bone was completely destroyed at its centre, and splinters of bone were found imbedded in the substance of the tumours, which was likewise traversed by numerous blood-vessels. The convex surface of the liver presented two whitish tumours about the size of a walnut, composed of a whitish, fatty matter, and covered by a thin, white membrane. The other organs were found in a normal condition.—*Archives Générales, Dec. 1832, from Rust's Magazine, 1832, B. 37, S. 1.*

15. *Compression of the Medulla Oblongata, by the Odontoid Apophysis of the second Cervical Vertebra. Abscesses of the Cervical Vertebrae.*—In the month of March, 1830, Dr. Hankel was requested to assist in the post mortem examination of a little girl, æt. 7, who, for several years had laboured under scrofulous tumours and abscesses in the neck, and had likewise suffered from repeated discharges of a purulent, fœtid matter from the left ear. During the last year

of her existence, she had been subject to violent head-aches, and pains in the left side, particularly in the arm, the latter of which could sometimes be relieved by frictions. The left extremities also became atrophied, and appeared to be shorter than the right. Her intellectual faculties were by no means impaired, and she preserved her memory and senses to the last moment of her existence, which was brought about by hectic fever.

Autopsy.—The extremities of the two sides exhibited a striking disproportion to each other. The glands of the neck were found swollen; the brain and plexus choroides were injected, whilst the cerebral substance retained its natural tint. Upon the left half of the medulla oblongata, a deep oval depression, produced by the processus dentatus of the second vertebra, was discovered. This process was moveable, and had passed through the occipital foramen. Upon dividing the ligaments of the neck, several ounces of liquid pus, of a yellow colour, and mixed with portions of tuberculous matter, escaped. The osseous substance of the atlas and second cervical vertebra was friable, and corroded by the pus—a more minute examination of the parts was not permitted. Tubercles were found in the lungs and mesenteric glands.—*Ibid.*

16. *Berzelius on the Chemical Constitution of Urine in Various Diseases.*—During the first period of fevers, the cutaneous transpiration being obstructed, the urine becomes more aqueous than in its healthy state: when the heat of the body increases, with acceleration of pulse, the urine becomes deeper coloured, without, however, letting fall a deposit, while its acid reaction diminishes, and at last nearly or entirely disappears; it is then rendered turbid by the addition of bichloride of mercury, which does not happen when the acid is present. As the disease advances the urine becomes more saturated, and is then rendered turbid by a solution of alum. When albumen is secreted more copiously, it is troubled by nitric acid and heat. When the fever ceases, as, for instance, on the seventh day, the free acid suddenly reappears, the colour of the urine deepens, and it forms a deposit by cooling. This deposit is not an evacuation of morbid matter, but is merely a combination of red colouring matter, with uric acid or urate of ammonia, and perhaps nitric acid, in an unknown state of combination. In intermittent fever the urine presents these phenomena at each paroxysm, and then the deposit assumes a carmine tint. During slow nervous fever, there is constantly formed an abundant deposit of uric acid, containing little colouring matter; the urine then contains an excess of the phosphates and a deficiency of urea, the other ingredients being in their normal proportion.

In anasarca, which is generally the result of debility of the whole system, serum is effused into the urinary passages; hence the urine appears albuminous, and is troubled by bichloride of mercury, although much free acid may be present. After a short time, the kidneys appear to secrete an albuminous fluid, which occasions the urine to be precipitated by a solution of alum, nitric acid, or heat. As the albumen increases in quantity, the urea diminishes, and finally disappears altogether. These phenomena likewise appear in chronic hepatitis, dyspepsia, and towards the close of pulmonary affections, especially during the last stage of hectic fever.

During severe vomiting, whether from scirrhus of the stomach or other causes, the urine is frequently turbid, and has a milky aspect, letting fall a white deposit, which, when collected, appears mucilaginous, and by desiccation becoming first yellow and translucent, then white and pulverulent; by affusion of water it resumes its mucilaginous form; pure potass dissolves out of it mucus, leaving a residue of phosphate of lime. Hydrochloric acid dissolves the latter and renders the mucus transparent, which also dissolves by digestion. This state is generally accompanied with alkaline urine, arising from the presence of the carbonates of soda and ammonia, diminished quantity of uric acid, and an excess of urea. In gout the urine is usually very acid, except during the paroxysms, when it becomes alkaline or neutral; uric acid is always present in considerable excess; the deposit is also abundant by cooling.

In jaundice the urine appears yellow, from an admixture of biliary matter; and on the addition of nitric acid, a play of colours is generally produced. Hydrochloric acid renders it green or brown, according to the state of modification in which the biliary matter exists. Sometimes orange-yellow flocculi are deposited: these are soluble in caustic potass, and give the usual re action with nitric acid, in partial hepatic obstructions, when no discoloration of the skin has appeared: the bile, by passing through the lymphatic vessels of the engorged parts, enters the circulation, and may be detected in the urine by evaporating a portion of the latter, digesting the extract in alcohol of specific gravity .833, and letting the tincture evaporate to dryness. The addition of nitric acid will then produce the change of colours—viz. green, blue, violet, and yellow—which characterizes the colouring matter of bile. In spasmodic and hysteric affections, the urine often becomes limpid and colourless, being, indeed, merely a solution of the urinary salts, deprived of almost every particle of organic product.

In diabetes mellitus, an immense quantity of sugar is secreted. At the first access of the disease, the only symptoms are copious emission of urine and diminished appetite; the cutaneous transpiration is obstructed, and the urine is supplied with water from all the fluid ingesta. The specific gravity is often as high as 1.050; as the sugar increases the urea diminishes, and at last totally disappears: colour pale-yellow, taste sweet, odour like that of skim-milk; the inorganic salts are present in their natural proportion, being merely diluted with a larger quantity of fluid. Towards the close of the disease, when hectic fever makes its appearance, the urine becomes albuminous, and now passes spontaneously into the alcoholic fermentation; the quantity of urine expelled increases to an enormous amount. We may calculate by the following formula the weight of the dry extract in solution in the urine, and of course the quantity daily expelled. A pint of urine, specific gravity 1.020, leaves by evaporation 382.4 grains of dry extract; which weight increases in the proportion of 19.2 grains for each unit of specific gravity, until the latter amounts to 1.050; so that if we have a patient voiding urine of specific gravity 1.021, we can determine the weight of solid matter present in his urine by making this calculation, $382.4 + 19.2 = 401.6$ grs. in every pint. When diabetic urine is evaporated to dryness, and alcohol digested on the residue, the sugar and extractiform matter are dissolved; this solution, by repose, leaves either granular crystals, like grape sugar, or merely a honey-like mass. We are ignorant whether this difference is owing to a diversity of saccharine matter, or to the presence of a deliquescent matter, which prevents its crystallizing. Sugar has been sought after in vain in the blood of diabetic patients: indeed this disease appears to be seated solely in the kidneys, which convert almost every portion of organic matter arriving in those viscera into sugar. When a favourable change takes place urea re appears, and a quantity of albumen makes its appearance in the urine.

M. Meisner, who has paid great attention to this subject, gives the following quantitative analysis of three specimens of diabetic urine, taken from the same patient at different periods:—

	1.	2.	3.
Matter soluble in ether, urea lactic acid, lactate lime, extractiform matter - - - - -	0.34	0.33	0.65
Matter soluble in alcohol, diabetic sugar, extractive matter, and salts - - - - -	7.06	3.46	5.78
Matter soluble in water; extractive matter and salts -	1.37	3.44	0.99
Vesical mucus, subphosphate of lime, and traces of peroxide of iron - - - - -	0.34	0.31	0.46
Water - - - - -	91.19	92.46	92.10

In diabetes insipidus no sugar is found, but there is present in the urine a

matter similar to that obtained by digesting alcohol on an aqueous extract of muscular fibre: no ultimate analysis of this matter has been as yet made.—*Lond. Med. Gaz.* June 22, 1833.

17. *Pathology of Phlegmasia Dolens*.—The following appearances were observed on dissection of a woman affected after parturition with phlegmasia dolens which proved fatal. The uterus exhibited nothing remarkable except the loaded state of the spermatic veins, which were very large and tortuous; the veins of the mesentery were also congested. The vena cava inferior was healthy down as far as its juncture with the renal vein, below which it was thickened, and filled with a fibrinous substance, varying in its consistence, and adhering to the inner coat of the vessel. On laying bare the femoral vein, *the subcutaneous cellular tissue was found to be infiltrated with serum, the granules of fat much firmer and more distinct than natural, and the intervening cellular membrane thickened and opaque.* The superficial fascia was dense, white, and of a flaky appearance, the lymphatic glands in the groin were large, full of serum, and closely matted together by condensed cellular tissue. It was extremely difficult to detach the iliac, femoral, and saphena veins, in consequence of their strong adhesions to their sheaths, and the surrounding organized lymph in which they were imbedded. These, together with the popliteal vein, were similar in condition to the inferior cava, except that the substance they contained was thinner, of a brown colour, and somewhat purulent appearance. In the remainder of the saphena, and in the veins near the foot, there was a plug of coagulum, they were otherwise healthy. The iliac and femoral arteries contained a small quantity of blood; the other arteries were empty.

This case appears to show conclusively that phlegmasia dolens does not depend solely upon inflammation of either veins or lymphatics, and this is confirmed by a case lately seen by Dr. Graves, in which both saphenas became inflamed and obliterated in consequence of a cutaneous eruption, without phlegmasia dolens being produced.—*Graves' Clinical Lectures, in Lond. Med. and Surg. Journ.* April 20th, 1833.

18. *Arteritis and Spontaneous Gangrene of the Right Lower Extremity—Arteries and Veins plugged up with Coagula*.—A girl, aged seventeen, previously in good health, was suddenly seized with shiverings, severe pains in the right leg, and especially in the foot of that side; the pains were so severe, that the patient compared them to tearing the nails from the flesh: in a few days the temperature of the limb began to lower and the foot assumed a bluish hue; her sufferings were not at all abated, in spite of bleeding and repeated leechings, &c. She entered La Charité about a fortnight after the first seizure. The constitutional symptoms were those of general feverishness and malaise; and the pains in the foot, leg, and lower part of the thigh were so intense, that the slightest motion caused her to scream out;—the skin of the toes and instep presented some purplish blotches, and when felt by the hand, the temperature of the limb, up nearly as far as the knee, was much lower than that of the other one. No pulsations could be perceived in the anterior tibial artery on the instep, nor yet in the posterior, tibial, peroneal, and popliteal arteries; they were, however, sensible at the upper part of the thigh. Bleeding, general and local, emollients, and opiates were prescribed, but without relief; the blood when examined was of a blackberry jelly colour, and stained the linen with pale-red spots. The purple blotches extended up the limb, and the temperature became still lower. The constitutional symptoms soon assumed a more formidable aspect; the breathing was short and anxious; there was intolerable anguish and repeated vomitings and hiccup, and no sleep could be procured by any sedatives. Cramps and pains were felt also in the left limb, which was swollen and tender. On the fourth day after her admission into the hospital, the whole right foot was of a uniform brown colour, the epidermis was peeling off, and a gangrenous odour arose from it. She died on the following day.

Dissection.—The right foot was of a port wine colour at some points, and at others was perfectly black, especially around the toes, where the skin was hard and dried like leather; the subcutaneous cellular tissue was infiltrated with serum as far up as the lower part of the thigh; the muscles of the foot and leg were quite soaked with it, and resembled much the appearance of half decayed flesh. The left limb was also œdematous. The blood-vessels on the right side presented the following appearances; the crural artery from the groin to the ham was converted into a hard cord, whitish outwardly, and lined and plugged up with a dirty-white friable coagulum, which at some points adhered to the inner surface of the tube. Similar appearances were found in the rami perforantes of the femoral, in the two tibials and in the fibular arteries; the internal surface of all these vessels was of a marked livid-red colour; the inner coat was not however lacerable, nor very evidently diseased; the vasa vasorum were not more developed than natural, and the surrounding cellular tissue was healthy. All the veins of the right foot were plugged up with coagula, some of a deep black, others of a grayish colour; the lower third of the internal saphena was also obstructed similarly. On tracing up the external saphena, the tibial and fibular veins of the crural, and even along the femoral, and external, and common iliacs to their junction with the vena cava, softened coagula was found in all, partially filling up their tubes.

The large nerves of the right limb were much redder than usual, and seemed as if injected with venous blood. The arteries of the left limb were sound, but the veins from the foot up to the common iliac, and even to its junction with the vena cava at different parts of their course contained softened broken down coagula.

The medullary substance of the brain presented the curious appearance of circular red circumscribed patches at various parts; in each of these circles the central point was of a darker hue than the circumference, so that they were not unlike to petechiæ on the skin. The lungs were œdematous; the pulmonary veins contained fibrous clots, which adhered feebly to the walls of these vessels; the right ventricle of the heart was occupied by one large coagulum, which had all the appearance of gooseberry jelly. Numerous small petechial spots existed on the pleuræ, costalis et pulmonalis.

Remarks.—We have observed that the lining surface of the arteries of the right limb was found reddened, but that there was no other sign or mark of morbid change in it. It has been much disputed by pathologists whether we are to admit this appearance as a test of preceding arteritis: Haller, Meckel, Bouillaud, Broussais, and others contend that it is; whereas, Corvisart, Laennec and Hodgson, Andral, &c. are of a different opinion, and assert that it is a “cadaveric phenomenon.”

The following valuable observations are taken from the article “Arteritis,” in the Dictionnaire de Médecine, et de Chirurgie pratique. “The redness may be wanting in true inflammation of the arterial tubes; and on the other hand it may be often observed, where no inflammation had ever existed; we not unfrequently see it in examining bodies which are partially putrid; and in these the imbibition of the bloody serum is no doubt the cause of the redness. Thus, we are not to consider the redness and swelling as pathognomonic morbid phenomena; nor yet, should they be wholly discarded. It must be admitted, however, that in by far the greater number of cases of arteritis, the redness, if it does exist, is not caused by the injection of the vasa vasorum, but rather by a tincture, or as it were a fixing of the colouring matter of the blood on the internal surface of the vessels; and that therefore this inflammatory blush does not essentially differ from the cadaveric imbibition.”

Cruveilhier is of the same opinion as Bouillaud, the author of the article in question; he does not consider the mere presence of a red colouring of the inner coats of the arteries as characteristic of inflammation; we should find at the same time a pencilled injection of the vasa vasorum in the cellular coat of the vessels, and also coagula adhering more or less firmly to their inner surface;

it is this last appearance which, according to Cruveilhier, is to be depended upon chiefly. Gendrin, Delpech, and Dubreuil, state, that in arteritis, the lining surface of the vessels is red, has lost its glistening smoothness and polish, is somewhat rough or wrinkled, and may be readily detached, and that the other tunics are swelled and softened. The subject is still open to difference of opinion. Cruveilhier, as stated above, considers that the essential or pathognomonic character of inflamed arteries is, that the blood within them is coagulated.

But we must be on our guard, lest we are led to believe that this change in the blood is found in all inflamed arteries; this is certainly not the case, as is fully established by M. Barde, in the first vol. of the *Revue Médicale*, and by M. Bouillaud, in his treatise on fevers. On the contrary, Haller expressly states—"In vasis etiam vivi corporis sanguis coit," and the truth of the remark is confirmed by every one.

M. Alibert, in his inaugural thesis, gives it as his opinion, that in cases of gangrene with arteritis, the formation of the clots precedes, and actually occasions by their irritation, the inflammatory state of the lining membrane of the arteries. Several very interesting examples are detailed in this thesis; in the 2d and 3d cases softening of the brain was found, with the morbid changes in the veins of the mortified extremity; and in the latter of these two cases an adherent clot was found in the left auricle; in another case, a clot was found in the pulmonary artery, and in a subsequent one, these sanguineous concretions existed not only in the vessels of the sphacelated limb, but also in the aorta, and in all its branches given off below the diaphragm; and in the common, internal, and external iliacs. Besides the venous trunk on the surface of the brain, and of the dura mater contained coagula; and at the upper and back part of the right hemisphere, a large black spot, two inches at least across, was observed; the texture of the brain was here exceedingly softened, and quite of a creamy consistence.—*Med. Chirurg. Rev. from Archives Générales*.

19. *Remarks on the Value of Pathological Anatomy*. By JAMES JOHNSON, M. D. —In the earlier days of physic, when morbid anatomy was uncultivated, and when, consequently, medicine had not the degree of exactness which it now possesses, men were thrown solely on the observation of facts, and a vast body of empiric experience was accumulated. We say empiric, because the nature of disease was unknown, and the observation consisted only in the statement of the results of the application of certain remedies to certain symptoms. Much practical truth was, no doubt, obtained; but, as many symptoms constitute only the common language of certain stages of diseases, totally differing in their characters and seat, it followed that much of the experience was fallacious, and men were ignorant why a drug succeeded in one case and utterly failed in another, which, to their eyes, appeared of a similar description. Hence all the vagueness, and much of the opprobrium, of physic.

When morbid anatomy was first explored, and its vast mines of real and solid information opened, men were dazzled by the glare of the wealth around them, and thought that it would suffice for all their necessities and wishes; in other words, they imagined that, to become good practitioners, it was merely necessary to know the real nature of disease, and the structural changes that accompany and occasion symptoms. The example of France is alone sufficient to display the fallacy of this expectation.

The truth is, that both means are necessary to constitute the knowledge available in practice. We should know the seat and the structural nature of disease, or we sink into empirics, and exactness is lost; we should know the effects of remedies on symptoms, as well as on structural lesions, or we become mere barometers of vital changes diagnosticating, prognosticating, doing every thing but cure.

At the present day, these two roads to knowledge may, happily, be joined. Men conversant in the exact truths of morbid anatomy may set themselves to observe the effects of medicines, and we need not say how incomparably supe-

rior the record of their experience is, to that empiric jumble of facts and fancies that has descended to us from our forefathers. We now appreciate the effects of remedies with some measure of certainty—we see how far organic lesions are amenable to treatment, and what medicines or means relieve particular symptoms, or sets of symptoms, not dependent on such lesions. In short, we have now a rational and scientific series of experiments, in clinical observation.—*Med. Chirurg. Rev. July, 1833.*

20. *On Hydatids and their Conversion into Tubercles.*—M. KUHN has lately read before the French Academy a memoir on acephalocysts, and the manner in which these parasitical productions give rise to tubercles. He holds the opinion of Laennec, Bremser, and others, that they are to be considered as truly of an animal nature; and draws a distinction between those found in the human body, from what are often seen in sheep and other lower animals; the former, says he, are always propagated by internal buds, or growths which are thrown off from the inner surface of the original hydatid, and may be, therefore, denominated “endogenous;” they may be compared to a nest of boxes, one within the other, whereas the latter produce buds only on their outer surface, and are, therefore, “exogenous.” It was after a very careful examination of the lungs of oxen, which had died of a species of phthisis called “pommelière,” that M. Kuhn was led to the belief of the degeneration or conversion of hydatids into tubercles. The hydatids, by their irritation, cause cysts to be formed around them; these cysts become stronger, fibrous, or even cartilaginous; meanwhile, the acephalocysts enlarge by serous imbibition, and multiply by buds from their inner surface; these again, in course of time, give rise to others, the whole nest being contained in one bag. From the inside of this bag is secreted a yellowish viscid matter, which becomes thicker and thicker; M. Kuhn regards it as the primitive tuberculous deposit: it gradually solidifies, and, with a simultaneous shrinking of the cyst, tends to squeeze and kill the enclosed animals, thus giving rise to a nucleus of tubercles. Sometimes the tubercles are not entirely filled up, but are hollow, and we observe only the shell or dried husk of the acephalocyst; we may even separate the thin layer of the animal from the debris within, by immersing some of the tubercles in water. M. Kuhn has enriched his memoir with beautiful illustrative drawings; they throw much light on the etiology of the tubercles which are found in the lungs and liver of ruminating animals. The coëxistence of hydatids and tubercles, in the same organs, is a fact at once curious and most interesting. The subject is one of much importance, and deserves future examination.—*Ibid. from Revue Médicale.*

21. *Sudden Death from Paralysis of the Lungs.*—The German authors attribute to this cause many of those instances of rapidly-fatal dyspnœa, which not unfrequently occurs during the course of other diseases, especially of phthisis. It is not uncommon for a medical man to leave his patient moderately comfortable, and apparently free from any immediate danger; and yet, in the course of a very few hours after, to be summoned to witness his death from complete strangulation. Dr. Shaeffer, of Ratisbon, first employed the appellation of pulmonary palsy to denote this affection; Storck called it catarrhus suffocativus, and Kerksig asthma paralyticus. It is common among infants, but still more so with old people. M. Lobstein regards many of the cases reported by Andral, (who was at a loss how to explain their fatality,) as instances of this disease. The following is an example.

A young man, aged twenty-eight, was admitted into the Strasburg Hospital with symptoms of general fever. Bleeding was ordered, and performed at 9 o'clock in the morning. At this time, there was no marked distress in the breathing; two hours afterwards intense dyspnœa came on, and this was accompanied with a strong mucous râle; the dyspnœa was speedily aggravated to orthopnœa; a severe pain and inward heat were felt along the entire length of

the spine. The bleeding was repeated, with some relief to the symptoms, but the patient died soon after quite asphyxiated. On dissection no satisfactory morbid appearances were found.

Two other similar cases are reported; they occurred in phthisical patients. M. Louis, in his great work, "*Recherches Anatomico-pathologiques sur la Phthisie*," inquires—"how shall we explain so sudden a death, when there has been no apparent accident, nor any precursory nor concomitant phenomenon?" We answer that it is not necessary to discover indurations, hepatization, engouement, or ulcerations, upon dissection, but that we must remember that the lungs are vital organs, and that their vitality may become suddenly affected by paralysis.—*Ibid. from Archives Générales.*

MATERIA MEDICA.

22. *Therapeutic effects of the Syrup and Extract of the Shoots of Asparagus.*—The following observations by M. GENDRIN, relative to the action of the syrup of the shoots of asparagus, are calculated to fix the value of that therapeutic agent. The syrup employed by M. Gendrin had been made the preceding year, and he administered it to persons in health and to those who were slightly unwell. He daily observed the state of the pulse in these persons, and measured the quantity of their drinks, and the urine they passed. All of them without exception had the quantity of their urine increased, and this commenced when the syrup was given in the dose of an ounce to an ounce and a half, but was not very marked until two ounces of the medicine were taken at a dose. When taken in this dose the urine tripled, quadrupled, and even quintupled the quantity of drink, in all the individuals. When this abundant diuresis was established, the greater number of these persons experienced thirst, and all had a considerable increase of appetite. M. G. repeated these experiments upon three series of persons, consisting of three, of five, and of four. He never gave with the medicine any other drinks or other medicine than a pint and a half of barley water, and of liquorice-root water. He never found the least odour of asparagus in the urine of these persons, nor their pulse to be lessened a single stroke. The day after the syrup of the shoots of asparagus was suspended, the diuresis ceased. In this respect the diuretic differs from the digitalis, after the use of which the patients continue to urinate copiously for seven or eight days. M. G. has administered the syrup of the shoots of asparagus to patients affected with dropsy, and particularly where that disease resulted from an affection of the heart. In all diuresis was produced; the remedy never failed except in patients in the last stage of the disease, when it is known that all diuretics fail. The action of the remedy upon patients affected with disease of the heart was never observed by any effect upon the heart. "If," says M. G. "some of them have had their dyspnœa relieved, this is what results in these cases from the use of all diuretics, when the diuresis is well established; this however does not prevent my admitting that there are some diuretics which act upon the heart. But I affirm that I have never been able to discover after the most careful examination, either in healthy persons or in those affected with disease of the heart, the slightest influence exercised over the action of this organ by the syrup of the shoots of asparagus."

M. Gendrin has also used the extract of the shoots of asparagus, prepared by evaporating their juice. The extract he used corresponded to 48 grs. for an ounce of the syrup. This he states to be more actively diuretic than the syrup. In the dose of 36 grs. it acts very powerfully, and in the dose of 48 grs. it is as efficacious as the syrup in the dose of two ounces. It does not exert any appreciable action upon the heart; does not produce any effect on the digestive organs, nor give any odour to the urine.—*Gaz. Méd. de Paris, June, 1833.*

23. *New Preparation of the Caustic Potash for Cauterizing.*—The following preparation in use at Vienna, is lauded in a communication by Dr. HENNAU, of Odessa, in the *Rev. Méd.* for February last, as an exceedingly convenient means of cauterizing, and as having the advantage of making an eschar of such precise form and size as the surgeon may desire. Take of powdered quicklime six parts; caustic potass, five parts; pulverize the potass in an iron mortar, adding gradually the powdered lime. A fine, very dry, grayish-white powder is thus obtained, which is to be preserved in a closely-stopped glass bottle. When wanted for use, a sufficient quantity is to be poured into a saucer, and enough spirit of wine or Cologne water added to make a paste, which is to be mixed up and made into the shape and size of the desired eschar. This is to be applied to the part, and in about five or six minutes the skin will be cauterized to the cellular tissue, which may be known by the appearance of a small gray line on the borders of the caustic paste. This last may be then removed, and the eschar washed with a little vinegar. If it is desired to cauterize more deeply, the paste is to be allowed to remain on ten, fifteen, or even twenty minutes. The pain it produces is said to be moderate; less than from a blister.

PRACTICE OF MEDICINE.

24. *Anodyne Metallic or Galvanic Brush.*—Under this name FRANCIS ERNEST VON HILDENBRAND, professor of pathology and practice of physic at Pavia, describes a rather singular remedy, for the cure of various neuralgic affections. It consists simply of a bundle of metallic wires, (*fascis e filis metallicis confectum*,) not thicker than common knitting wires, firmly tied together by wire of the same material, so as to form a cylinder of about four or five inches long, and one inch or three-fourths of an inch in diameter. This is applied to the pained part, previously moistened with a solution of sea-salt, when it produces relief so instantaneous, it is said, that it appears to the patients like the effect of a charm. Occasionally the pain is immediately and entirely extinguished, with the accompanying effect of a peculiar sense of emanation from the spot to which the brush is applied, causing the patient to believe that the pain is truly extracted by this method. On withdrawing the brush, the uneasiness occasionally returns, but in a more endurable form. The longer the application is continued, the more decided is the effect obtained; and phenomena so singular have resulted from its application, as even to astonish intelligent persons, quite on their guard against any magical illusion.

In illustration of the remedial effects of this agent, Hildenbrand mentions the following case, which he designates as altogether singular and wonderful. A man of thirty, a porter by occupation, afflicted with violent periodical *tic douloureux* of the face, (*metopodynia*,) was admitted into the Clinical Wards of Pavia. On applying the metallic brush over the left frontal nerve, the pain immediately disappeared from that one, but fixed on the corresponding nerve of the right side, which had been previously free from pain. The very moment at which the brush was removed from the left frontal nerve, the pain returned to its original seat, and there remained, though already remarkably abated in intensity. By applying a metallic brush to each supra-orbital nerve simultaneously, the professor banished the original nerve-ache of the left side, and at the same time prevented it from appearing in the opposite one. The same moment, however, a humming noise arose in each ear, and this also immediately ceased on the brushes being removed, when the nerve-ache returned immediately, though in a very mitigated form.

In order to obtain the desired effect from the use of the anodyne brushes, Professor Von Hildenbrand impresses the necessity of determining, as accurately as possible, the nature of the *neuralgia*, or the pathological state of the affected nerve. If the pain is merely *nervous*, that is, proceeding from subversion

of the equilibrium between the *dynamic factors of the sensitive life*, as the Professor, in imitation of his father, expresses it, without material changes having taken place in the affected part, in which case it attacks periodically, like an intermittent disease, and leaves intermissions entirely void of pain,—then the efficacy of the metallic brush may be pronounced to be almost infallible. But if, from the pain being uninterrupted, or at least void of perfect intermissions, from its aggravation under pressure of the part, from the conjunction of redness, heat and swelling, there is reason to believe that the proximate cause of any case of facial *neuralgia* or *hemicrania*, consists in a state of active congestion or sub-inflammatory irritation,—then the metallic brush affords no benefit, nay, sometimes may augment the intensity of the pain. By these means, Professor Hildenbrand thinks that the metallic brush, while it maintains at least a palliative therapeutic property in *neuralgia* of spasmodic character, may, in doubtful cases, furnish an auxiliary diagnostic sign, by the aid of which sub-inflammatory congestion may be distinguished from simple nervous erethism.

In the first experiments, performed by Professor Hildenbrand, he employs brushes which were intentionally constructed of two kinds of metal, for instance, silver and copper wire, copper wire and zinc wire, or zinc wire and brass wire, the individual wires being mutually mingled and blended, on the supposition, that electricity or galvanism, evolved by the contact of heterogeneous metals, might be the beneficial and sanative agent. He afterwards ascertained, however, that bundles of wires of one and the same metal produced an effect scarcely less speedy, but lost their anodyne influence as soon as they were covered by rust or verdigris. He further ascertained, that solid metallic bodies produce analogous effects, but in a much feebler degree than the numerous acuminate points of the bundle consisting of metallic wires. The nature of the metal, he adds, seems to cause no difference; for brushes of iron wire produce the anticipated alleviation in as great a degree as those of copper wire. If he could trust his observations, however, he thinks that he perceived a greater degree of anodyne virtue in copper, iron, and gold, than in other metals.

Admitting that the effect is constant,—to explain the theory of its production, Professor Hildenbrand does not hesitate to deduce it from the laws of electricity. The original nature of metallic bodies, which are remarkably good conductors of electricity; the rapid action of the brush if the aching spot has been previously moistened by the saline solution; the remarkable tendency of pointed bodies in attracting electricity; and the sense of an emanation, and an agreeable coolness, combined with manifest alleviation of pain admitted by the patients, he regards as no trifling arguments to infer, in the disordered and aching nerves, a certain degree of *electric plethora*, or accumulation of animal electricity, which may be discharged by the application of a suitable conductor. This hypothesis, he lastly remarks, would accurately correspond with the notions delivered in his elements on the accumulation of the imponderable Biotic principle in various parts of the nervous system, as the proximate cause of nervous disorders which attack in paroxysms, and are dissipated by what he denominates autocratic explosions.

We have given the foregoing statements without comment or remark, because they proceed from a physician of acknowledged judgment and observation. Taken by themselves, the facts, if facts they are, are extraordinary, and would lead us to believe that there was something more than fancy and mummery in the magnetic tractors of Mesmur. On a former occasion we adverted to the implicit confidence which Laennec reposed in the use of electric or electro-magnetic plates on the breast and back in *angina pectoris*, and similar neuralgic affections of the chest; and were disposed not only to doubt its alleged efficacy, but to regard it as mere influence of imagination. Both methods of treatment appear to be referable to the same principle, whatever that may be; and as both appear to be regarded as really efficacious by physicians, certainly not of second rate importance, we think that instead of being made the subject of ridicule, which is too often the case, and which can neither decide the matter

of fact, or investigate the principle, they should be subjected to fair trial, and their actual merits truly determined.

In order to understand the theoretical views of Professor Hildenbrand, it is necessary to observe, that his father, Valentine Ernest Von Hildenbrand, whose doctrines he adopts, imagined that health consists in a process which he names *organic-dynamic*, as depending on the soundness of organs, and the harmony of function,—resulting from the perfect equilibrium of the gangliar system and the vascular system, which he termed the two factors, in imitation of the language of mathematicians; and that every form of disease consists in the greater or less subversion of this equipoise of the gangliar and vascular systems. The Biotic principle is simply the result of this equilibrium.—*Edin. Med. and Surg. Journ. April, 1833.*

25. *Asphyxia of New-born Children.*—Dr. PATTERSON recommends cold affusion in these cases, and he cites in the 8th No. of the *Dublin Journ. of Med. and Chem. Sc.* two cases in which he has employed it successfully.

26. *Cases of Pleuro-pneumonia treated by Large Bleedings.*—The following cases were treated by M. BOUILLAUD, one of the ablest disciples of the physiological school; and will show with what justice the practice of that school is stigmatised as feeble and unsuited to violent diseases.

CASE I. *Pleuro-pneumonia of the right side, in the second stage—great prostration.*—F. G. aged fifty-eight. When he was brought to the Hôpital de la Charité, so great was his exhaustion that he might have been supposed to be affected with malignant typhus, had not the sputa, which are so characteristic of acute inflammation of the lungs, and the signs obtained by exploring the chest, removed all uncertainty from our minds. The sputa were viscid, transparent, and of a rusty colour. Percussion over the fossa supra-spinata gave out a dull sound; and at that part no respiratory murmur could be heard; but along the base of the scapula and between its inferior angle and the spine, a bronchial, or blowing respiration, and a strong resonance of the voice, amounting almost to ægophony, were perceptible. Lower down, a crepitant râle of small bubbles was heard, and the sound was somewhat obscure. He had been bled the day before, and the blood was sizzly. Ordered to be bled freely, and have twelve leeches to the chest. Next day, (22d) the blood was found to be buffy and cupped; the patient felt relieved; auscultatory symptoms the same; pulse 110; respirations from 32 to 36. To be again largely bled, and the chest, when it is painful, to be cupped. On the 24th all the symptoms were much abated; and in spite of the active depletions, the patient felt stronger; the same dullness on percussion remaining; the resonance of the voice no longer accompanied with the ægophonic shrillness; bronchial respiration as before; crepitant râle heard very distinctly over the fossa infra-spinata, and under the inferior angle of the scapula; pulse 92; respirations 28. On the 26th percussion yielded a sound less dull; bronchial respiration and bronchophony remaining. The patient was now convalescent; but, although the returning crepitating râle, “rhonchus crepitans redux,” extended itself considerably, the dull sound on percussion, and the bronchial breathing continued; in a few days he left the hospital well.

CASE II. *Pleuro-pneumonia of the left side, in the second stage.*—P. L., aged thirty, entered the Hôpital de la Charité on the 21st of September. She had pyrexia, pain in the chest, cough, dyspnœa, and expectoration of transparent, glairy, and rust-coloured sputa. She was largely bled; and on the following day the report is, that the symptoms are still very urgent; breathing very hurried and laborious, 48 to 52 times in the minute, and at each act of inspiration the alæ nasi are violently lifted up; the cough is painful and frequent; the sputa rusty, gummy, and flowing out when the vessel is inclined, “en nappe.” On percussion, the chest sounds well in front, but behind, on the left side, there is dullness over the whole of the fossa infra-spinata, and then no respiratory murmur is to be heard, but a bronchial blowing, or “souffle,” and a jerking

resonance of the voice. The prognosis was not favourable, as the disease had extended very rapidly in a short time, and the patient had suffered from dyspnœa for the preceding five years, in consequence of a neglected pneumonic attack. Ordered to be freely bled and leeches.

On the 23d she was much relieved; the breathing easier and not more frequent than 36 or 40 times in the minute; the sputa less streaked and coloured with blood. The exploration of the chest gave the same signs as yesterday. Venesection to be repeated, and blood to be drawn also by cupping over the fossa infra-spinata. On the 24th, respirations only 28 to 32 in the minute; sputa thin, mucous, and transparent; the bronchial souffle, bronchophony, and egophony well marked. On the 25th the ear began to hear the "râle de retour" at several points. On the 26th patient not so well; the crepitating râle heard yesterday, no longer appreciable; the breathing and the pulse increased in frequency. Ordered to be bled. On the following day, the crepitating rhonchus returned, and gradually, but slowly, the respiratory murmur was to be heard; the resonance of the voice also was heard faintly on the 4th or 5th of October; but the sound on percussion still remained very dull.

CASE III. *Pleuro-pneumonia of the left side, in the second stage, accompanied with typhoid symptoms.*—P. B., aged twenty-seven, of a feeble and unhealthy constitution, was admitted into the hospital on the 28th of September, with all the symptoms of inflammation of the lungs—the breathing 40 times in the minute—sputa frothy, transparent, and very rusty. Dullness on percussion over the fossa infra-spinata. Vesicular respiration superseded by a bronchial blowing;—voice also broncho and egophonic, especially along the base of the scapula. To be largely bled. On the following day slight crepitating rhonchus at the lower angle of the scapula, and this was more distinct on the 30th. The patient was bled on both days. On the 1st of October a strong crepitating rhonchus was heard over the supra-spinous fossa, and over the lower third of the infra-spinous fossa. The bronchial respiration and voice still distinct along the base of the scapula; sound on percussion dull; sputa viscid and rusty. Venesection and leeches to be repeated.

2d. The pulmonic symptoms aggravated, and the patient lay on his back in a state of great depression. To be cupped and blistered. 3d. Breathing very laborious, 44, and accompanied with violent action of the nostrils.—Cough frequent; sputa frothy but not rusty. Bronchial respiration below the left clavicle. To be bled to three cups. The clot small, and slightly buffed. He was relieved; and on the 5th, a crepitating rhonchus was heard over all the extent of the supra, and infra-spinous fossæ. On the 6th the respiratory murmur began to be blended with the crepitating rhonchus; and this latter sign was appreciable in the left axilla; and the sound on percussion was more sonorous.—From this date the symptoms continued to abate, and the breathing gradually resumed its normal characters.—*Journ. Hebdomadaire, No. 113.*

27. *Dysphagia.*—The 8th No. of the *Dublin Journal* contains the following interesting case related by Dr. GRAVES. "On the 1st of last September I was called to see a young lady, who was represented to be in a state of imminent danger. On entering the room, I found her sitting up in bed, surrounded by several female friends, all in the greatest alarm. Her face was pale, and her countenance indicated a good deal of anxiety. She held in her right hand a cup containing water, which she applied to her lips about every five seconds, and sipped an extremely small portion of the water, which she immediately swallowed with a considerable effort of deglutition, although the quantity was so trifling; she said that she should be immediately choked if she discontinued this perpetual sipping, and she referred to an intolerable uneasiness at the root of her tongue and in her throat, threatening immediate suffocation the moment she ceased to employ herself in swallowing; and so urgent was the feeling that impelled her to this act, that the moment an attempt was made to take

the cup out of her hand, she began to scream with agony, was agitated with convulsions, and to all appearances seemed in the last agony. This scene had lasted for several hours without interruption, and the appearance of the principal actress was rendered still more tragical by a black mass of leeches around her throat, and the blood from their bites trickling down her neck. On examining her more closely I found that there was no obstruction whatsoever to the passage of air through the larynx, and that she could make a full inspiration, without any wheezing or noise in her chest; there was no swelling or redness observable at the root of the tongue, or in the fauces. As the young lady was of an extremely delicate and nervous habit, being very sedentary and subject to frequent attacks of common hysteria, I immediately conjectured that her present symptoms were the result of an hysterical affection, and accordingly I removed the leeches, stopped the bleeding as soon as possible, and gave her draughts consisting of camphor, aromatic spirit of ammonia, and black drop, under the influence of which the nervous irritation soon subsided, and she fell asleep."

Dr. Graves makes mention of two other cases of, apparently, nervous dysphagia. A nervous young clergyman consulted him last year on account of debility and dyspepsia, accompanied with a painful and convulsive struggle, as he expressed it, which sometimes took place between the morsel he had swallowed, just before it entered the stomach, and a something that seemed to resist its further passage downwards. This lasted for a few seconds only, but was very distressing to himself and the spectators, and made him shun society. The other case is that of an excellent anatomist, in whom these sudden attacks of temporary dysphagia have become so habitual that he never ventures to eat unless a glass of water be within his reach; in him, the stoppage of the descent of the food is attended with an urgent sense of suffocation.

"In fever I have witnessed several times a very peculiar species of dysphagia, evidently occasioned by flatulent distension of the stomach to such an extent that the lower portion of the œsophagus partook of this condition; at least, I conjecture so, for during the struggle of the dysphagic paroxysm, a gurgling noise was heard, as if the bit of food was met by a portion of air contained in the lower part of the œsophagus; my friend, Doctor Autenrieth, of Tubingen, has particularly remarked this symptom, or at least something like it, in what he calls the abdominal typhus fever of young people; for he says, if the patient takes any drink a peculiar gurgling noise is heard as if the fluid was poured into a lifeless bag. Now, in precisely such a case, Mr. Rumly and I saw a young lady affected, in addition to this noise, with so great spasmodic dysphagia, probably from the entrance of wind into the lower end of the œsophagus, that she altogether refused to drink. This phenomenon gradually disappeared, and the lady ultimately recovered; but it deserves to be remarked, that in general this symptom and the gurgling noise, described by Dr. Autenrieth, are very bad omens in fever."

28. *Use of Turpentine in Sciatic Neuralgias.*—M. MARTINET has adduced a long catalogue of cases to show the superior efficacy of small doses of the oil of turpentine. To prevent its acrid effects on the stomach and bowels, he recommends that it be always blended with some corrective excipient, such as honey, gum arabic, magnesia, yolk of egg, &c. and the dose ordered is a drachm or two in divided doses, daily. As a matter of course a correct diagnosis must have been previously made, in order that we may be satisfied that there is no inflammation or organic disease of the nerves; under such circumstances we cannot reasonably expect a cure from the turpentine alone. If the drug vomits or purges to excess, opium should be added. In 40 cases of acute neuralgia, 34 were cured, 5 relieved, and 1 was not benefited. In 31 chronic cases, 24 were cured, 3 were relieved, and 4 experienced no advantage: 33 of the cases treated with the turpentine had resisted other remedies previously employed.

The period generally required for the cure was from five to twelve days; in a few cases the medicine must be continued longer. Out of 58 cases, 48 were sciatic, 3 crural, 4 brachial, and 3 facial neuralgias.—*Med. Chirurg. Rev. from Bull. de Therapeutique.*

29. *Arrest of Pain by a Magnet.*—Considerable interest has been excited in London by the success said to have been obtained in the treatment of neuralgia, tic douloureux, tooth-ache, and other affections of the nerves, by the application of the ordinary magnet. The following statement relative to this subject is from a recent No. of the *London Lancet*. It may be proper to remark, however, that since seeing this statement, we have ourselves, as have also some of our friends, tried the agent referred to in a limited number of cases, but without any beneficial results, or indeed any marked effects.

“Our readers will remember the interesting case of neuralgia of the finger at St. Thomas’s Hospital, upon which Dr. Elliotson stated in a clinical lecture, reported in a former No., that he had exhausted his store of remedial agents, without developing a shade of improvement. A more severe case, probably, was never subjected to treatment. The man left the hospital for a time, totally unrelieved, but soon afterwards returned, when in accordance with a suggestion, as Dr. Elliotson has since observed in one of his clinical lectures, of a correspondent of this Journal, the *colchicum autumnale* was tried in the case, without, however, the slightest benefit being derived therefrom. The sedative powers of the *lobelia inflata* then suggested to the doctor the propriety of giving the patient the chance of that medicine. The grounds on which it was employed, proved to be in a great measure correctly founded. The man took the lobelia, in increasing doses, every hour, beginning with seven drops of the tincture, and adding a drop to each progressive dose, until as large a quantity had been reached as could be taken without deranging the functions of the stomach. Great amelioration of the affection followed this treatment. The patient, who was before unable even to cross the ward, or bear the slightest cutting of his finger nails, and had become emaciated to the extremest degree, from pain and sleeplessness, was soon enabled to walk out of doors, and enjoy many hours of rest, recovered his good looks, and became comparatively cheerful.

“The relief, however, was very far from being either perfect or permanent. The continued exhibition of the medicine was demanded to secure any portion of rest.

“A short time since, however, a new remedial agent presented itself, in the form of the magnet. The hospital was visited by, (we believe,) Dr. Kyle first, and subsequently by a physician of the name of Blundell, a friend of the former gentleman, who followed up the application begun by Dr. Kyle. The lobelia inflata was allowed by Dr. Elliotson to be suspended, and the effect of the magnet tried. That effect was, we learn, a very decided one; the pain was, on every application of the instrument, removed, and continued absent for several hours. The distance however at which the operator resided from the hospital prevented, and still prevents, the daily use of the instrument, or, the impression on the patient’s mind is, that it would perform a cure.

“On Tuesday last, the Dr. Blundell already mentioned, reattended the hospital, at the hour of Dr. Elliotson’s visit, when, in the presence of the pupils and our reporter, he drew forth the magnet, and commenced its application to the patient’s finger.

“The instrument is of the horse-shoe form, about ten inches in its long axis, and five in its short, composed of five layers of metal, the central being the longest, and the whole bound with stout riband. The patient was at the time apparently suffering considerable pain, and unable to use his hand. The *north* pole of the magnet was gently passed five or six times down the sides and back of the middle finger, and then rested on the central joint. The result was, such a cessation of suffering, that he could gnash his fingers into the palm of his hand with ease and comfort, and he declared himself to be entirely relieved.

The power of the instrument, however, did not cease here. Dr. Blundell showed that it possessed the means of reproducing the pain in the most intense form. The *south* pole of the magnet was directed along the finger. At the third pass the patient began to bite his lip, and close his eyes with an expression of pain. At a few passes more his chin was involuntarily buried in his breast, and his wrinkled features evinced the acutest suffering. This was allowed to continue for a few seconds, when the *north* pole was again presented to the finger, and the agony speedily subsided. The spectators then left the man with a countenance perfectly tranquil.

“At the extremity of the ward lay an elderly lady, a martyr to *tic douloureux* in the lower jaw, extending to the ear, and affecting a large portion of the head. The disease, she stated, was of more than nine years’ duration, and had never ceased to afflict her for a day during that period up to her entrance into the hospital. Her appearance was proportionably miserable. The magnet had also been applied in her case, and with similar advantage, as she stated. On the present occasion, it was found on approaching her bed, that she was that morning free from pain, and the aid of the magnet was not needed. ‘But cannot you show its power by producing the pain?’ inquired a bystander. The suggestion was acted on. The *south* pole of the magnet was passed from the centre of the chin along the lower jaw-bone up to the ear. At the third pass the poor woman indicated that the *tic* was commencing, and in a few seconds more the affection was experienced intensely. The process was then stopped, as the experiment was carried far enough to satisfy all present of its consummation, and after a brief space the presentation of the *north* pole wholly freed the sufferer from pain. The operator subsequently stated that by continuing the passes he could have carried the pain on to the production of delirium.

“There is a female patient in another ward who had suffered intense toothache for three months, when a fortnight since, according to her own evidence, which we have no reason to doubt, it was instantly cured by one application of the magnet, through the medium of a key, and had not returned in the slightest degree up to the period of the visit on Tuesday last.

“These are very interesting facts. We present them to our readers unaccompanied by comment. The specific name given to his instrument by Dr. Blundell, is that of ‘mineral magnet.’ How far its application to disease admits of extension, we are at present ignorant.”

OPHTHALMOLOGY.

30. *On the Reproduction of the Crystalline Lens, after the Operation for Cataract.*—In the 14th vol. p. 384, of the Philadelphia Journal of the Med. and Phys. Sciences, we gave an account of the experiments of MM. Cottreau and Leroy d’Etiolles on this subject, and which seem to prove that the lens was reproduced. Similar experiments since tried by Dr. Barkhausen, of Berlin, were, however, attended with different results. This subject has been still more recently investigated by M. MAYER, and the January number of the *Archives Générales* contains a memoir from him in relation to it. M. Mayer examined the eye of an old woman, on whom the operation of couching had been performed several years previously. There was no trace of the depressed lens; the vitreous substance occupied its place, and immediately behind the anterior wall of the crystalline capsule, was observed the posterior wall or layer with the vitreous humour pressing forwards upon it. The following experiments, among many others, were performed by M. Mayer. The lens was extracted from the left eye of a rabbit, which was killed three days afterwards. No trace of a new lens was found at this period, nor on the fourth, fifth, sixth, or seventh days; but on the eighth, the crystalline capsule contained a small ring of crystalline substance, which could be separated from the capsule. At the end of one

month a large ring of crystalline substance occupied the place of the removed lens. In another rabbit, examined about the same time after the operation, a large white annular lens, with an opening in the centre, was found in the capsule, which adhered to this new lens. In eight weeks the new crystalline presented several white granular points arranged in a circle, having an opening in the middle; and in four months and a half it was not yet completely regenerated; for it was deficient at the centre, leaving there a rounded aperture, at the place where the capsule had been cut during the operation.

Soemmering has given us an account of four dissections, at different periods after the operation on the human subject.

In the first, the patient had been couched eight years and a half before his death. In the place of the crystalline capsule two semilunar whitish cheesy formations were formed, attached by their peripheral margin to the zonula Zinnii, and floating free at the inner margin; they were doubtless the remains of the crystalline capsule. The new crystalline was transparent, gelatinous, and imperfectly formed. The former one had been completely absorbed, but a small piece of the original capsule was found imbedded in the vitreous humour.

CASE II. *Three months after Couching.*—In the place of the former lens Soemmering observed an annular transparent gelatinous deposit, imperfect at the centre, which was occupied with a fine, almost diaphanous and arachnoid membrane, situated right behind the pupil, and forming a septum between the aqueous and vitreous humours.

CASE III. *Two years after Couching.*—Similar appearances were discovered. A ring of transparent substance, of the consistence of jelly, in the situation of the lens of the left eye; in the right one, which had been also operated on, the new deposit was only semicircular, the upper part of the circle being deficient. Probably the cause of this was that, during the operation, the upper half of the capsule had been completely torn from its adhesions.

CASE IV. *Three years after Couching.*—The annular “renflement,” or new deposit, had been very regularly formed; it was slightly and equally convex on both its surfaces, and was quite free from any adhesions to the uvea.

It is to be kept in mind that in order to display the annular crystalline substance the eye must be immersed in strong alcohol, by which the new deposit is rendered slightly opaque. Soemmering was at first puzzled to determine whether it was really a substitute for the removed lens, or was merely a product of inflammation; but he was speedily satisfied that the former was the case. Sometimes the ring is imperfectly formed; and in other cases we find only isolated points or grains. These cannot be the debris of the original cataractous lens, as some have imagined, for the simple reason that these grains are perfectly transparent, and the cataract was opaque. The preceding facts sufficiently show that there is a reproduction, although an imperfect one, of the crystalline lens; but we have reason to believe that an indispensable condition is a sound and healthy state of the capsule, and especially of its front layer; if this be either much torn and destroyed, or if it be rendered opaque by disease, there is no regeneration of the crystalline. In all probability, the secretion of the new substance is chiefly, if not altogether, from the inner surface of the anterior wall or layer of the capsule; and as this layer adheres intimately to the contained crystalline, no traces of the cavity or liquor of Morgagni can be henceforth discovered. The process of regeneration proceeds invariably from the circumference to the centre; and is always found interrupted at the place where the capsule has been cut, or lacerated during the operation;—the rent in the capsule is occupied with cellular substance. Hence the crystalline substance is never entirely reproduced, but always presents in the centre, or opposite to the injured part of its capsule, an opening which is filled up with a fine cellular tissue. The shape of the new crystalline is generally that of a three-quarter moon, the horns of which nearly touch each other. In the experiment on the rabbit, which was allowed to live for four months and a half after the operation

of extraction, the new crystalline had this form, with a free space in the middle, occupied by a cellular web.

M. Leroy d'Etiolle and Soemmering state that they have found the new crystalline free and unadherent to its capsule; the observations which M. Mayer has made do not coincide in this respect with theirs;—it is a point left open for examination. It is worthy of remark, that the mass of the new crystalline almost always exceeds that of the original; but that the entire eye very generally becomes somewhat shrunk and contracted for some time after the operation. This shrinking is found to extend even to the optic nerve, and that, too, beyond the decussation as far as the thalamus. It is conjectured however, that in favourable cases the eye and its appendages may resume their original volume.

31. LISFRANC'S *Treatment of Amaurosis*.—First of all we should ascertain whether there are any symptoms of inflammatory fulness and activity in the eye or head;—as a matter of course, such cases require depletion; when, however, we have reason to believe that the disease is one rather of debility, Lisfranc strongly advises us to direct our attention in an especial manner, to stimulate the frontal and other branches of the fifth pair of nerves by means of repeated blistering over the eyebrows and temples. Should this fail, we must endeavour to excite the torpid organ by acting immediately on the ciliary nerves, any irritation of which is speedily propagated to the ophthalmic ganglion and the origin of the trigeminus. This is most effectually done by the application of stimulants to the cornea; and of these stimulants the nitrate of silver in substance is the best. The inferior segment of the cornea is to be lightly touched, till we perceive a whitish cloud;—the eye is then to be immediately washed with water. Considerable pain is felt; the whole apparatus of the eye is put into a state of so increased activity, that on the morrow a stranger might suppose that our patient laboured under acute ophthalmia. This treatment induces sometimes vomiting; and as it always occasions temporary contraction of the pupil, it must not be employed when there is a tendency to this evil. The operation requires to be repeated several times.—*Med. Chir. Rev. from Archives Générales, Jan. 1833.*

SURGERY.

32. *Fracture of the Os Hyoides*. By Dr. LALESQUE.—This fracture occurred in a marine, sixty-seven years of age, who, in a quarrel, had his throat violently clenched by the hand of a vigorous adversary. At the moment there was very acute pain, and the sensation of a solid body breaking. The pain was aggravated by every effort to speak, to swallow, or to move the tongue, and when this organ was pushed backwards. Deglutition was impossible, the patient could not articulate distinctly; and he was unable to open his mouth without exciting a great deal of pain. He placed his hand upon the anterior and superior part of his neck to point out the seat of the injury. This part was slightly swollen, and presented on each side small ecchymoses, one above, more decided, immediately under the left angle of the lower jaw. The large cornua of the os hyoides was felt very distinctly to the right side, and it could be felt on the left deeply seated, by pressing with the finger: in following it in front towards the body of the bone, a very sensible inequality near the point of junction of these two parts could be perceived. By putting the finger within the mouth, the same projections and cavities inverted could be felt, and even the points of the bone which had pierced the mucous membrane, &c. were evident. Having bled the patient, and placed a plug between his teeth to keep the mouth open, the broken branch was brought by the finger back to the surface of the body of the bone, and easily reduced. The position of the head inclined a little back: rest, absolute silence, diet, and some saturnine fomentations, composed the

after-treatment. To avoid a new dislocation by the efforts of swallowing, the œsophagus tube of Desault was introduced, to conduct the drinks and liquid aliments into the stomach: this sound was allowed to remain until the twenty-fifth day, at this time the patient could swallow without pain, and began to take a little more solid nourishment, and at the end of two months the cure was complete. By placing a finger within his mouth a slight nudosity could be felt in the place where in the recent fracture the splintered points were perceptible.—*Journal Hebdomadaire, March, 1833.*

33. *Case of Death after very painful Injuries.*—A man was admitted into the Hôpital la Charité with an immense tumour on the upper and inner side of the thigh. The operation for its removal was very protracted and painful, in consequence of the deep adhesions to the ossa pubis and ischii. The patient died on the third day, in a state of alternate stupor and delirium. On dissection, the only morbid appearance observed was an effusion of serum into the lateral ventricles of the brain. M. Roux stated that in almost all cases where death is consequent upon very severe suffering, he has found an effusion of serum either between the membranes, especially between the arachnoid and pia mater, or in the lateral ventricles. He has very often noticed it in patients who have died from burns, and more frequently in children than in adults.—*Transactions Médicales.*

34. *Two Cases of Œsophagotomy.*—A soldier, while eating soup, accidentally swallowed a bone. He applied immediately for assistance to the surgeon of the regiment, and a variety of means was tried to remove it; but all in vain. On the fourth day after the accident, he was put under the care of M. BEGIN. By introducing a caoutchouc sound down the pharynx, he found that it passed about seven or eight inches, and was then obstructed by a foreign body, which was hard, and immoveably fixed in its place; this seemed to be in the œsophagus, immediately below the level of the cricoid cartilage. No forceps could reach this depth, and the severe pain caused by the firm pressure of a probang, forbade any attempt to push the bone down into the stomach. The patient experienced much anxiety and distress in his breathing. It was proposed to give him an emetic, but the reporter states, that “la deglutition étoit trop difficile, et ce plan ne put recevoir d’exécution,” (the wherefore is not very obvious.) On the sixth day, the saliva was mixed with purulent matter; but the bone stuck as fast as ever, and now three grains of tartrate of antimony were exhibited; the patient vomited freely, and felt himself relieved; the probe did not, however, indicate any favourable change in the position of the bone. The respiration was moderately easy, and he could swallow fluids with little inconvenience. The quantity of pus which escaped from the mouth had increased in quantity for some days past.

As all means to dislodge the bone had been tried without effect, M. Begin resolved on the twelfth day after the accident, to attempt its extraction, by cutting down upon the œsophagus. An incision was made between the trachea and the inner margin of the sterno-mastoid muscle, extending from the sternum, to the upper edge of the thyroid cartilage. The omohyoideus muscle was divided across, the trachea drawn to the right side of the wound, and the carotid artery, jugular vein, and par vagum, to the left; a branch of the superior thyroid required the ligature. On carefully continuing the dissection, a drop of pus followed the stroke of the scalpel; a director was then carried deep into a large sac, lying close to the gullet, and a bistoury carried upwards and downwards, so that the anterior parietes of the sac were divided to nearly the extent of the outward wound; a large quantity of pus mixed with shreds of cellular substance flowed out; the left forefinger was now introduced, and the thin intervening septum of the walls of the œsophagus was distinctly felt; by gently rubbing and pressing this, it gave way, and the finger passed into the gullet itself; still no foreign body could be found; a mouthful of drink was given, and

this escaped from the wound. The opening in the œsophagus was cautiously enlarged by the bistoury; a large vessel, probably the superior thyroid, sprung; the bleeding orifice could not be found, but was at length secured by passing a needle fairly round, and thus inclosing a button of the surrounding parts in the ligature; the finger being now passed as deep as it could be carried, felt the bone, impacted in the tube of the œsophagus, nearly opposite to the upper piece of the sternum; a bent forceps was then introduced, and attempts were made to lay hold of the bone; but in every attempt, it seemed that the walls of the œsophagus got included between the blades. A blunt-pointed tenaculum could be used more easily, by inserting it round the lower surface of the bone, and then gently dragging it upwards, till at length it was fairly extracted; a quantity of pus and of sloughy cellular substance escaped at the same time. The operation occupied twenty-five minutes. Absolute abstinence was enjoined, and the mouth was only moistened occasionally, to relieve the thirst; on the following day, an elastic gum tube was passed into the stomach, and some broth given. The progress of the case was altogether most favourable; the wound gradually healed, the food ceased to escape by the orifice, and the patient ultimately quite recovered.

CASE II. B. J. was brought to the hospital on the 30th Feb. 1831. On the preceding day he had swallowed a bone, which stuck in the gullet, and could not be removed. An emetic had been given, and although free vomiting was induced, no benefit followed. So firmly was it impacted, that no tugging with forceps, or with probangs passed beyond it, was of any avail. It did not altogether block up the tube, for small probangs, or rather probes curved at the end, might be introduced further down than it lay, although with some difficulty; considerable purchase might therefore be employed, during the withdrawal of these; but in spite of every effort, the foreign body could not be dislodged. The respiration and deglutition being easy, the surgeons were unwilling to resort to an operation at present, as there were good grounds for expecting that the bone might be gradually loosened, if not by the motions of the canal, at least by suppuration. But these hopes were speedily found to be fallacious, and the patient suffered such distress that he was urgent that something be done for his relief. On probing the œsophagus, it was thought, that the bone had descended somewhat, as it could not be seized so easily as hitherto with the forceps. M. Begin therefore resolved to operate, and the operation was performed on the eighth day after the accident. The steps of it were very similar to those in the preceding case; the integuments were freely divided, the trachea and œsophagus separated from the sheath of the great cervical vessels, and then the finger introduced deep into the wound; the bone was felt through the walls of the gullet, somewhat below the level of the upper edge of the sternum. The bistoury was carried along the finger as a probe, in order to avoid any injury to the inferior thyroid vessels, and a small opening was made into the œsophagus; this was gradually enlarged, till the finger could enter freely into the tube; the bone being now felt distinctly, a pair of long and curved forceps was introduced, and with much difficulty the bone extracted. Not above two table-spoonfuls of blood were lost.

The subsequent treatment was the same as had been so successfully adopted on the former occasion; all the food was introduced by means of a stomach tube. On the fourth day, a healthy suppuration was established, and the wound slowly closed. He was discharged in six weeks perfectly well.—*Med. Chirurg. Rev. from Journ. Hebdom. April 1833, No. 135.*

35. *Notice of Acqua Binelli, with an Account of some Experiments made to illustrate its supposed Effects.*—This is the title of a very interesting article, by Dr. JOHN DAVY, in the *Edinburgh Med. and Surg. Journal*, for July last. In our preceding number, p. 535, et seq. we published an account of some experiments made with this liquid at Berlin, and which were highly favourable to its efficacy in arresting external hæmorrhage. The investigations of Dr. Davy tend

to disprove entirely the hemostatic powers ascribed to the liquid by the German experimentalists, and the known sagacity and intelligence of Dr. Davy entitle his observations to every confidence. The properties attributed to the liquid under notice, by Binelli, and those who prepare and vend it at present, are not a little marvellous, such as the stopping both internal and external hæmorrhages, and even of the large arteries when cut transversely—the cleansing and healing of all kinds of wounds—the renewal of uterine evacuations when suppressed, and the moderating them when excessive, &c. The following is Dr. Davy's account of his investigations into the properties of this fluid.

“I first examined into its physical and chemical qualities. It proved of the same specific gravity nearly as distilled water. It was neither acid, alkaline, or saline. Its odour was not unlike that of coal-gas not purified, which is lost by boiling. Its taste was rather pungent, not in the slightest degree astringent; in brief, it appeared to be merely water, containing a little volatile oil or naphtha, and was probably prepared by the distillation of water from petroleum, or some kind of tar.

“I next made trial of it as a styptic. I scratched the back of the hand with a lancet till the blood flowed. The water applied to the scratch rather increased the bleeding than stopt it. The following morning, in shaving, the razor inflicted a slight cut: the *Acqua Binelli* was again applied, and the result was the same.

“These few and simple trials were made in January, 1831, just after I received the water; and they of course convinced me that the thing was an imposition on the public, and deserving of no further investigation.

“A short time since my attention was recalled to the subject by a medical practitioner of this island, who had studied at Naples, inviting me with others to witness the effects of a preparation made in imitation of the *Acqua Binelli*, and which he maintained was identical with it in composition and virtues.

“The experiment he invited us to witness appeared an unobjectionable one, namely, the partial division of the carotid artery of a goat, the bleeding of which he undertook to stop by means of his fluid. He allowed us to expose the vessel and cut it across; about one-half of the circumference of the artery was divided, and the bleeding was most profuse. He stood ready with compresses moistened with the fluid, which he instantly applied one over the other, and secured them by rolling a bandage about the neck, making moderate pressure on the wounded vessel. A little oozing of blood followed, which soon ceased. He said that in three hours the bandage and compresses might be removed, without any renewal of the hæmorrhage. Accordingly, at the end of three hours they were removed; but when the last compress was raised, the bleeding broke out as furiously as at first, and, to save the life of the animal, the artery was secured by ligature. On examining the last compress, a small coagulum of blood was found adhering to it, just the size proper to close the wound in the carotid; thus accounting for the ceasing and renewal of the bleeding.

“Reflecting on this result, and considering the chemical nature of the fluid employed to moisten the compresses, which appeared analogous to that of *Binelli*, the conclusion I arrived at was obvious, namely, that, had the compresses used been moistened merely with common water, the effect would have been the same,—the bleeding would have been stopt; and it also appeared very probable, that, had the compresses been allowed to remain undisturbed, there would have been no renewal of the bleeding.

“To ascertain the truth of these inferences, the following experiments were made.

“On the same day, February 8th, in the presence of several medical officers, I divided partially transversely, the carotid artery of two dogs; one small and feeble, the other of moderate size and strong. In each instance, the bleeding was most profuse till compresses dipt in common water had been applied and secured by a bandage, which, as in the case of the goat already given, completely stopt the hæmorrhage.

“The small dog, from the proportionally large quantity of blood which it lost, was very feeble immediately, and appeared to be dying; but it presently rallied, and for several days seemed to be doing well. It unexpectedly died on the 15th, seven days after the infliction of the wound. The bandage during this time had not been touched, and no application had been made. Now, on exposing the neck, the wound was found covered with coagulable lymph discharging pus; and, on dissecting out the artery and eighth nerve contiguous to it, a mass of coagulable lymph appeared lying over the wound in the vessel, extending about half an inch above and below it. This mass of coagulable lymph having been carefully removed, and the artery slit open, the vessel was found quite pervious,—not in the least contracted. The wound in the fibro-cellular tissue, or external coat, was closed by a minute portion of dense coagulable lymph. But not so in the middle and inner coat; in these there was a gaping aperture, across which, on minute inspection, two fine threads, apparently of coagulable lymph, (as if the commencement of the healing process,) were observable. The cause of the dog’s death was not discovered.

“The other dog did not appear to suffer from the wound. The bandage and compresses were removed on the 15th February without the occurrence of any bleeding. On the 20th of the same month, the wound in the neck was nearly closed by granulations. The artery was now exposed by incision; and the portion that had been wounded taken out, between two ligatures previously applied. On careful examination of this excised part, it was found free from coagulable lymph, at least there was not the same thickening or tumour from lymph deposited, as in the former case; it was probably absorbed. When the external loose cellular tissue was dissected away, a very minute elevation, about the size of a pin’s head, appeared on the site of the wound, the remains of the cicatrix externally. The artery was completely pervious, and not all contracted where it had been wounded. Slit open for internal examination, the wound in the inner coat was marked by a red line interrupted by two white spots; there was no gaping; the edges adhered together, excepting at one point; elsewhere the union was complete. The white spots resembled the natural lining membrane; and had the whole wound been similarly healed, I believe it would have been impossible to have traced it.

“The general results of these experiments, (if I may be allowed to speak so of so small a number,) are not without interest in application to surgery. They show how a hæmorrhage from the wound of a large artery, which by itself would be speedily fatal, may be easily arrested by moderate compression through the means merely of several folds of linen or cotton moistened with water; and they further show how, under this moderate compression, the wound in the artery heals, the vessel remains pervious, and without the formation of an aneurism; and how, after a time, only slight traces of the wound are discoverable. Under this moderate pressure the healing of the wounded artery seems to be very analogous to that of a wounded vein, and apparently by means of the same natural process.

“Whether similar results could be obtained, were trial made of the same means in the wounds of arteries in the human subject, can only be ascertained positively by judicious experiments.—The probability is that the results would be the same. The analogy is very complete, and some facts well known in surgery accord with it, not to mention the experience of the effects of the *Acqua Binelli*, as certified by men of high respectability.

“It was my intention to have given a selection of the certified cases in favour of the *Acqua Binelli*, brought forward in the pamphlet which is furnished with the water. But on reconsidering them, it appeared a superfluous labour, as the results, (giving them credit for correctness,) however excellent in a curative point of view, are no more than the enlightened surgeon of the present time may readily admit to be owing to water dressings alone, without the aid of pressure,—the majority of instances adduced being examples of gun-shot wounds and contused wounds, from which there was no profuse bleeding, and no ne-

cessity, according to the ordinary mode of surgical treatment, for securing wounded vessels.

“I have laid stress on the effect of the *pressure* afforded by the wet compresses applied in the experiments related, believing that the virtue of the means consists in the pressure,—of course not in the water, excepting so far as it renders the compresses better fitted for adaptation to the wound to produce the degree of resistance requisite to counteract the heart’s impulse in the vessel;—and also better fitted to exclude atmospheric air. I would also lay stress on the *moderate* degree of pressure that is produced in the manner described,—allowing the blood to pass through the canal of the artery, and, as before observed, doing little more than resisting the momentum of the blood in its passage from the moving source.

“The importance of this moderate degree of pressure, which has the effect of reducing as much as possible the wounded artery to the condition of a wounded vein, is, if I do not deceive myself, very considerable. When I have pressed with the fingers forcibly on the compresses applied to the wound, expecting at the moment to arrest the bleeding, I have been disappointed. The hæmorrhage has continued; and it only ceased when the compresses have been secured, and not tightly, by a roller passed round the neck of the animal. And, further in illustration, I may remark, that I have been equally disappointed in using graduated compresses, insuring considerable pressure on the wound. This means has failed, when general moderate pressure effected by compresses about two inches long and one wide, succeeded.

“On considering the comparative circumstances of these two modes of applying compression, therefore, the difference of result is perhaps what might be expected. The severe pressure can hardly arrest the bleeding except by pressing the sides of the vessel together and closing the canal, the accomplishment of which requires a most nice adaptation, and a force which cannot easily be applied with steadiness except by mechanical means, and in situations affording firm support beneath.

“Should the expectation which I have ventured to form of this method of stopping the bleeding of wounded arteries of a large size in man be realized on trial, I need not point out how very useful it may prove in military surgery,—how very available it will be in the field and in battle, especially in great actions, when, however numerous and well-appointed the medical staff of an army, the number of wounds requiring attention must always exceed the means of affording adequate surgical relief, according to the plan of treating them at present in use, of suppressing hæmorrhage by ligature.

“I have said nothing of the boasted efficacy of the *Acqua Binelli* given internally. I trust it is as little necessary to make any comments on it now-a-days, as on the tar-water of Bishop Berkeley, so very analogous in nature and reputation. Both the one and the other in some cases may be serviceable; but their principal recommendation appears to be, that in doubtful cases they are innocent.”

36. *On the various Sorts of permanent Flexion of the Fingers, and of their diagnosis.*—1. The first that we shall mention, is that which is caused by a contraction, or puckering of the palmar aponeurosis. Dupuytren has the merit of having first distinctly pointed out the true nature of this affection, and of the treatment which it requires; namely, the section of this strong aponeurosis.

2. A permanent flexion of one or more fingers may be the result of some disease or malformation of their joints.

Case.—A young man had white-swelling of the ankle-joint. The little finger of the left hand had been permanently contracted in the form of an arch, from his infancy; the phalanges did not move, the one upon the other; but there was free motion between the finger and the metacarpal bone. No hard cord or projection was felt in the palm at the root of the little finger, when this was forcibly bent backwards, or extended. In short, the permanent flexion in this

case arose from an ankylosis of the phalanges. In some cases it is produced by a synovial cyst forming over one of the joints; this mishap is not very unfrequent among tailors; in others by an irregularity, or unevenness of the articular surfaces of the phalanges. We observe such cases among tailors, seamstresses, and especially among knitters. In them a contraction of the little finger is not uncommon, and it proceeds from some abnormal change in one or other of the joints.

Case.—A young female, who worked in the manufactory of lace, applied to Dupuytren, to relieve her of a contraction of the four fingers of both hands upon the palms; they were bent so as to form nearly a quadrant of a circle. The phalango-metacarpal joints were quite free; when the first phalanx was strongly bent backwards, no tense tendon or cord was to be felt.

3. A third variety of the affection is, when it is caused by a division of the tendons of the extensor muscles. A person applied to Dupuytren under the following circumstances. The two last fingers were constantly bent upon the palm of the hand; yet on extension, they could be readily made even with the others; but no sooner was the extension withdrawn, than the fingers again became bent. While extended, no hard cord was to be felt on the palmar, or on the palmar surface of the finger; and moreover, each joint might be easily moved. The patient had received a sabre cut on the back of the hand, and the tendons of the extensors had been divided. Nothing could be done for him.

4. A puckered cicatrix of the skin will sometimes cause flexion of the corresponding finger or fingers; hence the importance of keeping the hand extended during the healing of any wound, sore or burn.

5. A lesion, or injury of the tendons of the flexors may have the same effect. This variety is apt to be confounded with, and mistaken for the first, or that which results from a contraction of the palmar aponeurosis: but in the latter case, the finger cannot be made to yield to any extension, and the tense cord, which was not to be felt before, is now readily recognised during the effort. When, on the contrary, the malady has been caused by an injury of the tendons, the projection, which was very distinct while the finger is bent, becomes much less so, or altogether disappears when it is forcibly stretched. An example of this variety is detailed: a tumour had been excised from the finger, and during the operation the sheath of the tendon had been opened.

6. This last species of permanent flexion of the fingers is that which arises from the loss or wasting of the substance of the flexor muscles. This may be destroyed by a gun-shot wound of the fore-arm, or by laceration, from any violence. In such cases there is always more or less paralysis, in consequence of the injury done to some of the nerves. The different joints of the fingers remain quite flexible; but when they are forcibly extended, pain is felt at the cicatrix of the wound.

It must be altogether unnecessary to state that these different varieties of the above malady require different modes of treatment, according to the nature of the exciting cause.—*Med. Chirurg. Rev. from Journ. Comp. Sept. 1832.*

37. *Formation of Callus, and the Means of Remedying it when Vicious or Deformed.* By BARON DUPUYTREN.—There is, perhaps, no subject in pathological anatomy, which has more exercised the sagacity of observers, and the imagination of those who establish hypotheses without requiring either observation or experience, than the theory of the formation of callus. In recent times, two opinions have especially prevailed—namely, viz. those of Duhamel and Bordenave. The first attributed the consolidation of fractures to the swelling of the periosteum and medullary membrane, to their extension from one fragment to the other, and to their subsequent reünion and ossification. He admitted that this reünion took place sometimes by means of a single external clasp, sometimes by a double one—one of which enveloped the periphery of the fragment, while the other entered the medullary canal, where it formed a kind of mortice of greater or lesser length. Bordenave established other principles. He admits

that the reünion and consolidation of fractures, takes place by the same mechanism as the reünion and cicatrization of wounds and soft parts. To this conclusion he was doubtless led by what takes place when the fractured surfaces are exposed to the air. He believed that he perceived cellular and vascular granulations between the fragments of the fractured bones. According to him, these granulations, being approximated, become, subsequently, solidified by the accumulation of calcareous phosphates in their interior. These two doctrines, more or less modified, were adopted up to the time when I undertook, in 1808, to verify the ideas of Bichat and Bordenave. But I was astonished to find nothing to justify them. I multiplied my researches, and was led by my numerous experiments to establish a theory partly founded on that of Duhamel, and which I have since taught in my courses of pathological anatomy.

If we examine the parts injured in fracture, from the first to the tenth day, we find an effusion of blood about and among the fragments, and even in the medullary canal. This ecchymosis may extend to very distant parts. Considerable inflammation and engorgement take place. The fleshy fibres are confounded with the inflamed cellular tissue, and shortly cannot be distinguished from the other parts. The periosteum becomes red, then pale; it swells, then softens, and discharges between it and the bony parts a reddish serous-like fluid. The fibrous net-work of the parietes disappears. The medullary tissue itself swells, inflames, and gradually effaces the canal in the centre of the bones. The marrow becomes fleshy to a certain degree, and unites with that of the opposite side. If we examine what takes place in the fragments, we see the clot which separates them reäbsorbed in a few days, and replaced by a gelatine-form liquid. From the fourth to the sixth day the surfaces of the fracture are covered with a reddish, downy substance, which, however, is not invariably present. From the tenth to the twenty-fifth day the swelling of the soft parts becomes more solid, its adhesion to the intermediate substance between the fragments every day more intimate, the muscles, too, resume their aspect and functions. The tumour, which I have named the "callus tumour," diminishes in extent, and parts from the surrounding tissues. Its structure is homogeneous, like fibro-cartilage, and with difficulty divided. When detached, it is seen to be formed by fibres parallel with the axis of the fractured bone. The medullary membrane, swollen and transformed into a fibro-cartilaginous tissue, narrows, progressively, the central cavity of the bone, and ends by entirely obliterating it. The inner mortice resulting from these organic elaborations, mingles, on a level with the fracture, with the substance intermediate to the fragments.

As we advance in the examination of the formation of callus, we observe other peculiarities, which may last till the fortieth, or even the sixtieth day. In weak subjects, the formation is only completed in three months. The lardaceous and fibrous mass which constitutes the "callus tumour," and which completely envelopes the fractured pieces, becomes by degrees cartilaginous, and rather bony. About this time the fragments are sunk into the centre of a solid clasp, which adheres all round, and which is externally covered by a thick periosteum, united with that ensheathing the sound bones. No external traces of the solution of continuity now remain. The cellular tissue is still stiff and condensed. The soft substance between the fragments hardens and adheres to them more firmly, although it is still far from effecting a perfect union. The central mortice continues to extend itself towards the extremities, augments rapidly in consistence, and soon forms a very solid osseous cylinder. At this period the bandages are generally removed. But this callus is not destined to remain, for which reason I have termed it the "temporary callus."

From the third to the fifth or even sixth month, the "callus tumour," and central mortice become more compact. The intermediate substance is ossified, differing only in colour from ordinary bone. This transformation I have called the "definitive callus." In the last period of the change, the central mortice

is rarefied, cells appear in its interior, and it changes into a reticular tissue, which itself soon disappears, leaving the canal completely free. At first, a medullary membrane lines the cells, and after the reöpening of the canal, it becomes continuous with its lining membrane, and also secretes a marrow. The external portion of the callus also disappears at length. One may readily understand that the various dispositions of fractures, occasion slight varieties in that of the callus. Thus, when two fractured bones mount on each other, the interior clasp does not exist. The same takes place when there is no medullary cavity.

To sum up;—the reünion of bones in ordinary fractures offers the following phenomena:—1st. Effusion of blood, and a viscous and glutinous fluid between the fragments. 2d. The formation of an ecchymosis in the surrounding tissues. 3d. The formation of a cartilaginous bony external clasp, and the development, internally, of a mortice formed by the tumefied medullary membrane, which undergoes the same changes. 4th. Ossification of the intermediate substance between the fragments. 5th. Diminution of the “callus tumour,” reëstablishment of the medullary canal, and return of all the parts to their natural state. We thus see that the period of forty days allowed by many surgeons for the consolidation of fractures is far from being sufficient, and especially in oblique fractures, and in those where the extremities of the bones overlap each other.—*Leçons Orales*, 1833.

38. *Lithotrity*.—MM. Double, Larrey and Boyer, presented a report to the Academy of Sciences at their meeting of the 8th of June last, on the patients treated by M. CIVIALE in his ward at the hospital Neckar during the past year. The derangements in the hospitals produced by the cholera caused a complete interruption for a time in the service of the calculous patients confided to M. Civiale. He consequently has had but 93 patients, of whom 43 have been treated by lithotrity. Of these last, 27 have been completely cured; 10 after submitting to different trials of the operation have died, and six remain unrelieved. Of 8 other patients operated upon by lithotomy, 5 died and 3 were cured. All the others were persons in whom different affections of the bladder had simulated a calculous affection without any of them really having a stone. Of the total number of patients there were only 2 females, both of whom were cured by lithotrity in a few days. Two children, one of nine, the other of twelve years of age, have also been successfully treated by lithotrity; but M. C. finds it necessary in operating upon children to modify his process of operating. Infancy, in many cases, presents a contraindication to lithotrity; M. C. is aware of this, and he points out moreover different circumstances in adults and old persons, which should lead the surgeon to have recourse in preference to lithotomy, or not to operate at all.—*Gaz. Méd. June 15th*, 1833.

39. *Thirty-one Fractures in one and the same Individual*.—There was lately in Bird's Ward, Middlesex Hospital, an extraordinary instance of the facility with which the bones of the body are occasionally broken and reünited, in the person of Eliza M., fourteen years of age, who was admitted April 29th, under the care of Mr. Arnott, for fracture of the right thigh, in consequence of a fall. This, according to the account of the mother, is the thirty-first fracture which her daughter has experienced; and the girl, who is quick and intelligent, states the particulars thus:—The right thigh has been broken seven times, the left six; the right leg nine times, the left once; the right arm four times, the left three; and the left forearm once.

Eliza M. was about three years of age when the first fracture, that of the left leg, occurred from a fall, and she has never fallen since without fracturing a limb. But even this is not necessary, for she has broken a bone by merely catching hold of a chair, and sometimes in simply turning round suddenly. She has a sister six years of age in whom there exists the same susceptibility, and who, since the age of eight months, has had nine fractures. In neither of the

parents or their families has there been any similar disposition, nor in three others of their children, two boys and another girl.

There is nothing peculiar in E. M.'s appearance. She has delicate features, a fine skin, dark hair and eyelashes, and bluish-gray irides. The bones of the trunk and upper extremities present no alteration from the natural form, but those of the right leg are strongly arched forward, and so is that of the left thigh; in a trifling degree this is the case with the left leg and right thigh. Besides the curve forwards, the bones of the right leg seem to be flattened laterally, as in *rickets*, but no curvature existed before the bones began to break. A variety of medicines were formerly tried in this case, with a view to remedy the great brittleness, (as it has been called,) of the bone; but the mother states that she never found them to be of the least benefit. She speaks, however, in strong terms of the advantages derived from a residence at the sea-side, and nourishing diet.

No difficulty has ever been experienced in getting the bone to unite—so little that the mother has treated many of the fractures, (those not attended with displacement,) herself, and has of late sought surgical assistance only when the larger bones were broken. Thus the girl was in this hospital about two years ago for a broken thigh, and this interval is the longest she has ever experienced without a fracture.

The thigh bones, and those of the arm, have never broken without displacement; those of the leg have. It would seem as if, in the case of the latter, the fracture had not always been complete. Her health suffering, this girl left the hospital on the 28th of May, but Mr. A. mentioned the other day that he had since called at the residence of her parents, and found her doing well. The limb had been treated on the double-inclined plane with splints, which were continued at home. E. M. does not walk without a crutch, and it was in consequence of this slipping that she met with her last accident; but Mr. A. found her sister, who has had the nine fractures, running about without any assistance of the kind, and in a state of apparently perfect health.—*Lond. Med. Gaz. June 15th, 1833.*

MIDWIFERY.

40. *Two Cases of Artificial Delivery.* By M. TH. LOVATI, Professor in the Obstetrical Institution of Pavia, extracted from the Clinical Review of that Institution, for the years 1830–31.—We publish with all the detail which they merit, two cases of delivery produced by artificial means; an operation which has been condemned, though not without regret in France, and which has been performed already eight times in the hospital of Pavia with success. It may be as well, perhaps, to remark, that Professor S. does not deserve to be charged with temerity in practice, for we find, that in ninety-four cases attended by him, he performed the operation of turning but once, and that he manifests great dread of the forceps. There are several different methods employed for the purpose of effecting premature delivery; Professor Sorati, however, prefers the introduction of the sponge to all others, provided there is no urgent necessity for immediate delivery. Professor Billi, of the St. Catharine obstetrical institution at Milan, has recently had recourse to this method, and met with the greatest success. On the two succeeding cases, a comparative judgment of the merits of the two operations, viz. the introduction of the sponge, and the puncture of the membranes, may be formed.

CASE I.—First labour.—Pelvis normal in its formation, though exceedingly narrow. Artificial delivery brought on in the eighth month, by the introduction of a sponge into the cervix uteri. Happy termination of the case. A woman, æt. 33, in her first pregnancy, of small stature, sanguine temperament, and who enjoyed at all times excellent health, was admitted into the Lying-in-

Hospital. Upon an examination of the pelvis, it was found that this cavity inclined very much forwards, though with the exception of its being contracted in all its dimensions, it was generally speaking well-formed. The pelvimeter of Baudelocque indicated the existence of but three inches six lines in the sacro-pubic diameter, and as much in the oblique; it was, moreover, discovered by the introduction of the finger into the vagina, that the sacro-vertebral angle was nearer the pubis by half an inch, than the pelvimeter had indicated. There existed, therefore, a contraction of one inch in all the diameters of the superior straight. Under these circumstances it was evident, that delivery at full time could not be accomplished without great risk to both mother and child, it was consequently determined, that premature delivery by artificial means should be attempted. There was some embarrassment in determining exactly the period at which the operation should be performed. The menstrual discharge having always been irregular, it was impossible to derive from its absence any definite conclusion relative to the epoch of conception; and no other phenomena had occurred to advertise the woman of her having conceived, it was equally impossible to determine at what period the movements of the fœtus had commenced. The only indications, therefore, from which any conclusions could be drawn, were the volume of the uterus, the degree of development of its neck, and the presenting portion of the fœtus. The fundus of the wound extended as high up as the lower margin of the epigastric region; its neck, though still elongated, was nevertheless, sufficiently dilated to admit the introduction of the point of the first finger, whilst its inferior segment, a good deal thinner than usual, allowed the head of the fœtus, which corresponded in size to the degree of uterine development, to be distinctly felt. All these circumstances combined justified the conjecture, that the woman was about the eighth month of her term, nevertheless, as there existed so much incertitude, and also to afford the infant a better chance of surviving, it was deemed expedient to defer the operation for two weeks longer, inasmuch as the delay, whilst it gave additional strength to the vital energies of the infant, by no means increased the difficulties of the operation, for it matters very little whether at this period the head increases in size or not, as its imperfect ossification allows it to adapt itself to the narrowness of the passage.

On the 12th October, at 11 o'clock, A. M. the woman having been placed in the horizontal position, the professor proceeded to perform the operation in the following manner. A small tampon of sponge, an inch in length, and about the diameter of a quill, through the centre of which a thread was passed, was introduced by one of its extremities into a trocar cannula, in such a manner, that the cannula served as a conductor, by means of which the other extremity of the tampon could be introduced into the orifice of the cervix uteri. The whole apparatus was then placed along the palmar face of the first finger, and introduced into the vagina. The extremity of the tampon having penetrated the external orifice of the uterine neck, the cannula was seized with the left hand, and gradually pushed forward by a sort of rotatory motion, until the sponge arrived at the membranous sack. The operator was convinced that the entire cavity of the neck was traversed by the tampon, by the sensation produced by striking the end of the tampon against the membranes, and by the complete absence from pain when this shock was created. In order to remove the cannula without changing the position of the sponge, it was only necessary to push against the sponge by means of a drill, while at the same time the cannula was withdrawn, the thread, an end of which being out of the vagina was fastened to the thighs. The operation occupied but a few moments, was attended by no hæmorrhage whatsoever, and by no more pain than is ordinarily produced by the operation of touching. The patient was kept in the horizontal position, and to guard against the pain, or convulsions which might ensue, from the introduction of a foreign substance into the womb, an emulsion containing the ext. of henbane, and a light vegetable diet were prescribed. In about three hours after the operation, pains of short duration occurring at in-

tervals of a quarter of an hour, and which offered all the phenomena of uterine contractions, made their appearance. For the next two hours they increased in violence, and then gradually diminished until 6 o'clock at night. A slight tractive force being now applied to the thread, the sponge was drawn out. It was found to have acquired nearly four times its original bulk, was soft, and covered with a thick mucus. Upon examination the neck was found thinner, much softer, and both its cavity and orifice sufficiently dilated to admit of the easy introduction of the finger, as far as the membranes. There was no other change in the parts, and no indication whatever of the existence of irritation. A second piece of sponge six lines in length, and two in thickness was now introduced; the difference in the size of the sponge being made to correspond with the relaxed condition of the cervix uteri. Its introduction was followed by the occurrence of violent pains, which lasted until 11 o'clock at night; at that hour they ceased entirely, but reappeared at 6 o'clock in the morning, though in a much milder form. Her general health was perfect. Believing that this second tampon had performed all that it possibly could, at 8 o'clock it was withdrawn, and was found to have increased in its thickness to seven lines, and to be covered with a thick inodorous mucus. The cervix uteri was found thin, soft, both its orifices more dilated, and the internal to a much greater extent than the external one. There was no symptom whatever denoting the existence of either general or local irritation. A third piece of sponge eight lines thick was introduced. In an hour after its introduction, the uterine contractions recommenced, and about 10 o'clock again became feeble, at 1 o'clock, P. M. in making an examination of the parts, it was discovered, that there existed a slight degree of resistance to the extraction of the tampon; this was found to have very much increased in size, in those portions which had corresponded to the cavity and internal orifice of the neck, and in a less degree in the part previously in contact with its external orifice, the dilatation of which was found to be in a less advanced stage than the other parts. A fourth tampon similar to the last was now introduced, in one hour afterwards pains both more violent, and occurring at shorter intervals, than any of the preceding ones came on, and lasted until 8 o'clock, P. M. At this time, during an examination of the patient, the sponge fell into the vagina; and it was discovered that the cervix uteri had entirely disappeared. The regularity of the pains, the dilatation of the cervix under their influence, the tension of the membranes, all evidently indicated the first stage of an approaching labour. The external orifice still kept up its resistance, and the inferior segment of the uterus its thickness. From this period, the woman being considered as in an ordinary labour, was permitted to change her position and leave her bed. The resistance offered by the inferior segment of the uterus, together with the trifling nature of the pains, prolonged the period of labour to the fourteenth day at 8 o'clock, P. M.; at this time the membranes burst of themselves, and previous to the entire disappearance of the neck of the womb; this circumstance, joined to the size of the head, its inclination backwards and to one side, and more particularly to the contracted dimensions of the pelvis, retarded the completion of the delivery to the 15th at 1 o'clock, A. M. when it took place, though with great difficulty. The infant was born apoplectic, but in consequence of a copious bleeding from the cord, was soon restored to animation. Upon examination, it appeared to have already passed the eighth month, its length was fifteen inches eight lines; the oblique diameter of the head four inches nine lines; the antero-posterior four inches; the bi-parietal three inches one line; the perpendicular three inches three lines; and the auricular two inches nine lines; its weight was four pounds five ounces avoirdupoise. During the first few days after delivery, the mother suffered from an attack of bronchitis, for which she was twice bled, she was speedily relieved, and in a few days left the hospital with her infant both in perfect health.

Professor Lovati in general prefers the introduction of the sponge in the manner we have just described, to the employment of the puncture; the opera-

tion, however, most generally practised. He contends that the latter operation renders the labour more difficult, inasmuch as the membranous sack, the utility of which in opening and dilating the neck, is well known to every one, is ruptured. Several other methods, such as frictions of the uterus, stimulants applied to its neck, separation of the membranes from the internal orifice of the neck, have been proposed to bring about the same object, which we have just seen effected by the sponge. But of these we may remark, that the first are not sufficiently active to effect this end, the contractions which they produce ceasing as soon as the cause exciting them is removed; and that the latter is accompanied by danger, and exposes us moreover to the inconvenience of rupturing the membranes—a circumstance always to be avoided. The sponge, he concludes, gives less pain, and is at the same time more certain than any other measure. But when the danger is urgent, the sponge may be too slow in its operation; in the following case it will be seen, that under such circumstances, the professor did not hesitate to puncture the membrane. A close examination of these two cases, in which both the causes demanding an operation, as well as the operations themselves, were different; yet in which alike success attended each, seems to us well calculated to demonstrate in what light artificial delivery should be considered, as well as how much its dangers have been exaggerated.

CASE II.—First labour.—Obstinate vomiting; eclampsia coming on in the seventh month; artificial premature delivery produced by a puncture of the membranes, attended with complete success.—A young girl, æt. 17, of a sanguine temperament, and thin habit of body, who had always, by a scrupulous observance of a particular regimen, enjoyed very good health, becoming pregnant, also became sad and restless, and was attacked by a series of distressing symptoms, the most obstinate of which was continued vomiting. These symptoms increased to so distressing a degree, that a physician was obliged to be consulted, who prescribed blood-letting, revulsives, resolvents, and finally sedatives, but without producing any beneficial effect. About the middle of October, 1830, she was admitted into the hospital in the seventh month of her pregnancy. At this period she presented truly a most deplorable spectacle; reduced almost to a skeleton; tormented by hunger, without being able to take any kind of food; the stomach rejecting every thing, even the remedies administered with a view to her relief, it was with difficulty that life was sustained. By administering small quantities of jelly broth, and chocolate made with osmazome, so that the little she could retain, consisted of the most nutritious articles, she was but barely supported. About the end of October the vomitings ceased, and were replaced by violent spasms of the stomach, and convulsive movements of the whole body. During the paroxysm her intellectual faculties became disordered, the countenance mild, the eyes injected, the jugulars swollen, the carotids pulsated violently, and the lips were covered with foam. In such a condition it was thought advisable, in the first place, to attack the cerebral symptoms; with this view, she was twice bled, the quantity of blood taken being proportionate to the strength of her vital powers—great prostration, nevertheless, succeeded to the operation, to relieve which, an infusion of mother-wort and balsam, with laudanum, was prescribed. This was immediately rejected by the stomach. A large blister was then applied to the epigastric region, which, by concentrating the disease upon the stomach alone, produced a momentary relief. But the advance of her pregnancy, and the debility produced by the obstinate vomitings, as well as by the evacuant measures, which had been necessarily employed in the epileptic paroxysms, did not permit this calm to be of long duration. In a few days the general convulsions returned with more violence than ever, at the same time assuming the type described by Sauvages under the term of eclampsia puerperalis. Upon the loss of sense, and after some moments of complete immobility, violent contractions of all the muscles would come on, the body of the patient being frequently made to describe an arch backward, the bases of which were the head and feet, pre-

senting a most frightful appearance. The limbs were violently extended, and the articulations absolutely inflexible, whilst the eyelids remaining half closed, left the contracted pupils exposed to view. Then suddenly, the convulsions passing from the extensor to the flexor muscles, the whole body was bent up, the arms being closely applied to the trunk, whilst the latter was flexed and bowed forward. Not a muscle, not a fibre, was exempt from spasm; thus at one instant the countenance wore a serious aspect, at the next a smiling one, the changes succeeding each other with astonishing rapidity. Vomiting, the involuntary evacuation of urine, hiccup, palpitations, and a host of similar phenomena, complete the assemblage of symptoms occurring during the paroxysm, which lasted sometimes as long as two hours and a half. The paroxysm over, she generally sank into a state of prostration and distress, that beggars description. Every part of her body became so sensitive, that the slightest touch produced the most excruciating pain, whilst all the voluntary muscles seemed stricken with palsy. She remained in this condition several hours, more or less, according to the intensity of the paroxysm. As her pregnancy advanced, these attacks became more violent, as well as more frequent, and she suffered from as many as fifteen in the short space of nine days. What now remained to be done? Blood-letting, as recommended by Mauriceau, Lamotte, Levret, Baudelocque, &c. was henceforward impracticable, on account of the great prostration of the patient; and antispasmodics, as well as all other internal remedies were rejected as soon as administered. Frequent immersions of the extremities in warm water during the period of calm, and cold applications to the head during the paroxysm, were productive of no effect whatsoever. Thus on the one hand, extreme prostration, and on the other, the increasing violence of the paroxysm threatened our patient with speedy dissolution; and although delivery complicated with eclampsia, in the opinion of the most experienced practitioners, proves very often fatal, yet in the present instance, delivery was the only measure that seemed to promise a happy result. By a singular contretemps, the uterus, in the midst of the general convulsion, remained perfectly tranquil, apparently experiencing no pain whatever. Experience having taught the professor that the general convulsions which occur during pregnancy, are very often suspended during labour, and considering moreover that there remained but this measure to oppose to an affection, which, if suffered to progress, would prove fatal to both mother and child, he determined to bring about premature delivery. On the 13th of November, at 1 o'clock, P. M. the membranes were punctured by means of a sharp-pointed sound, and the whole of the liquor amnii evacuated, in order that the uterus might apply itself more closely to the fœtus, and also be induced to contract in a shorter space of time. Nevertheless, no pains made their appearance until 6 o'clock the next evening. During this interval of twenty-four hours, but one attack of eclampsia had made its appearance. During the labour, several feeble convulsive efforts manifested themselves, though fortunately they retained their trifling character, and in two hours time, the patient was safely delivered of an eight month's child, alive and healthy. With the pregnancy vanished, as if by magic, both the general convulsions, and those of the stomach, which had continued so obstinately for such a length of time. The patient remained in the hospital a few days, in order to recruit a little, and then left it perfectly cured.

41. *Employment of Decoction of Belladonna in a Case of Rigidity of the Neck of the Uterus.*—Dr. RICKER, Director of the Institution for the Instruction of Midwives in the Dutchy of Nassau, relates in *Siebold's Journal*, Vol. XI. No. 3, the following case. A woman nineteen years of age, small, tolerably robust constitution, who had always menstruated regular, although the appearance of her courses had always been preceded by acute pain about the sacrum, became pregnant in the spring of 1829. Labour pains came on during the night of the 31st of December. Dr. R. saw her the subsequent afternoon. He found the vagina contracted and dry; the neck of the uterus still high, and entirely obli-

terated; and the inferior portion of the uterus so thick that it was difficult to distinguish by the touch the head of the infant through it. The mouth of the uterus was a quarter of an inch thick; hard, and felt like cartilage. The end of the forefinger could with difficulty be introduced into it. Fumigations were directed to the vulva, and the application to the neck of the uterus of a sponge wet with a decoction of chamomile. The next day, January 2d, the parts continued in the same state; the patient was bled twelve ounces; the contractions of the uterus were less painful; at night the os tincæ was dilated to the extent of an inch, and it was hoped would continue to enlarge, but the next day it was found to have remained stationary. A sponge was wet with a decoction of belladonna and of marsh mallows, two drachms each, and of four drachms of flaxseed, and applied to the neck of the uterus, and renewed every half hour. At the termination of three hours, the os tincæ had dilated to three inches and a half, but as the head advanced slowly, the forceps were applied after some hours, and a vigorous child delivered.—*Rev. Méd. Feb. 1833.*

MEDICAL JURISPRUDENCE.

42. *Case of Poisoning by Arsenic.*—In a late No. of the *Annales d'Hygiène Publique et de Med. Leg.* there is an interesting account of an examination of bread suspected to contain arsenious acid, by M. ORFILA. That distinguished chemist succeeded in detecting the poison by the following method. The bread having been cut into pieces was treated with cold distilled water, the liquor filtered, and then tested by concentrated liquid hydro-sulphuric acid, (solution of sulphuretted hydrogen.) The fluid became instantly yellow, but was not sensibly troubled. Some drops of muriatic acid were added to precipitate any sulphuret of arsenic which might form. The liquid was so little troubled, that it would be difficult to suspect what was subsequently to happen. In fact it was *only after some days* that there was deposited a yellow precipitate, consisting of the sulphuret of arsenic and organic matter. Had he only waited twenty-four or forty-eight hours, no precipitate would have been obtained.

The precipitate was separated and washed repeatedly in distilled water, then placed on a little filter, and washed with very weak ammonia, by which the sulphuret of arsenic was dissolved, and the organic matters left. This proceeding was frequently repeated, the ammoniacal solution then evaporated to dryness, the residuum mixed with a little charcoal and carbonate of potass. The mixture was then *toasted*, by holding the watch-glass at a certain distance from live coals, with a view to decompose any animal matters, which the sulphuret of arsenic might still contain. The watch-glass and its contents were then pulverized in a mortar, and the powder introduced into a tube, the upper extremity of which was drawn out in the spirit-lamp. The part containing the mixture was then brought to a red heat, when metallic arsenic quickly appeared.

"I should remark," says M. O. "1st, that it is important when we act on a small quantity of matter, to calcine it together with the ground watch-glass, because without this precaution we should often fail in detaching the sulphuret of arsenic; 2d, that we must not push the previous torrefication too far, lest we decompose and volatilize the sulphuret of arsenic, or even reduce and lose the metal in the atmosphere. In conclusion, I think it my duty to insist especially on the process which should be constantly adopted when we endeavour to reduce the metal from very small particles of arsenious acid, or of the sulphuret of arsenic. The tube should be narrowed and drawn out in the spirit-lamp. The oxydation of the metal should also be accomplished by placing the metal in a tube open at both ends, and of moderately large size. Metallic arsenic is, moreover, recognised, 1st, by its physical properties; 2d, by its garlic smell; 3d, by the faculty it possesses of dissolving in warm nitric acid, and affording by the eva-

poration of the liquid a white mass, which being dissolved in distilled water and treated while warm in a phial with liquid sulphuretted hydrogen, affords in a few seconds a yellow precipitate of sulphuret of arsenic, soluble in ammonia, which deprives it of its colour."

43. *On the Poisonous Properties of the Salts of Lead.*—Among the salts of lead Dr. A. T. THOMSON has endeavoured to show that it is probably that the carbonate is the only direct poison; and that the seemingly poisonous properties of the other salts of that metal depend on their conversion into this.

The author commences his inquiry by the detail of a few historical facts, to show that the poisonous effects of the carbonate of lead were known at an early period, and that the opinions respecting the poisonous properties of the other salts of this metal are of modern date. Paracelsus, who introduced the medicinal employment of acetate of lead, administered it in large doses with impunity; and instances are recorded in which persons have swallowed from one drachm to six drachms of the salt, without experiencing any injurious consequences.

He then states some experiments which he made to determine the affinity of the different salts of lead for carbonic acid; from which it appears, that subacetate and citrate of lead in solution have so powerful an affinity for carbonic acid, as to take it from the air, and all other substances containing it; that the affinity of the acetate for this acid is comparatively weak; and that carbonic acid effects no change whatever on the nitrate, muriate, sulphate, phosphate, and tartrate of lead.

The next object of the author was to examine the effect which the three salts, convertible into the carbonate, produce upon animals. Eight experiments upon dogs are detailed, which led to the conclusion that these quadrupeds are bad subjects of experiments with the salts of lead. None of the dogs died. He endeavours to account for the deaths recorded by Orfila in similar experiments on dogs, by suggesting that, as the doses were extravagantly large, the irritation excited in the stomach produced inflammation and death, in the same manner as common salt or any other salt in excessive doses, independent of any poisonous property. He also thinks that some fallacy may arise from placing a ligature upon the œsophagus, as under such circumstances the animal cannot be considered to be in a natural condition. Eight experiments upon rabbits are next detailed. In the first experiment, six grains of *nitrate of lead* in solution were injected into the stomach of a strong young rabbit; no injurious consequences resulted, nor did any inconvenience follow the repetition of the experiment with nine grains of the *nitrate* on the following day. Three days afterwards, when the same rabbit appeared in perfect health, six grains of the *carbonate* of lead, suspended in mucilage of starch, were injected into the stomach of the animal. On the following morning he was found dead. The only peculiarity perceived, on opening the body, was the turgid state of *all* the cavities of the heart; the blood was slightly coagulated in the right auricle, but it was fluid in the other cavities.

In the fourth experiment, six grains of *muriate of lead*, in solution, were injected into the stomach of a strong young rabbit, without being followed by any inconvenience. Three days afterwards, six grains of the carbonate were thrown into the stomach of the same rabbit, who died on the morning of the second day.

Two other rabbits were treated with seven grains of the *acetate* and of the *subacetate* of lead. No inconvenience followed the administration of the acetate; that of the subacetate was followed by dejection and languor, with a disinclination to move and to take food: the animal, however, was alive at the termination of a week after taking the salt; it died in twelve hours after taking four grains of the carbonate of lead.

The author is disposed to conclude that the subacetate of lead, which approaches nearest to the carbonate in its effects, owes its poisonous property to its powerful affinity for carbonic acid: he points out the consequences which

would result to the practice of medicine, if it should appear that the carbonate is the only salt of lead deleterious to the human subject; and remarks that these experiments appear to form an exception to the doctrine, that the activity of a poisonous salt is in proportion to its *solubility*.—*Second Report of the British Association for the Advancement of Science*.

MEDICAL STATISTICS.

44. *On the Bearing of Epidemics upon Medical Statistics, and Political Economy*.—After a close investigation of the subject, M. VILLERME arrives at the following conclusions. “That epidemics diminish both in frequency and intensity in those countries which from a state of barbarity, or ignorance pass to that of civilization, and also in those which pass from a semi-civilized condition to one in which civilization is at its acmé. That the lower classes of society being more frequently attacked, consequently more frequently fall victims to the epidemic, than the middling classes, or those in good circumstances. That in causing the disappearance of epidemics, and in diminishing their force and frequency, civilization has attended in a great many situations both the maximum and minimum epochs of life, but more particularly the former or maximum. That in a given number of patients of all ages, the mortality will be found to be much greater in the very young and very old; so that in this respect, the laws of epidemic mortality correspond with those ordinarily observed, it results from this, that those epidemics which attack the two extremes of life, are *cæteris paribus*, the most fatal. That the vaccine has effected at least in the thickly populated country of France, nothing more than alter the period of death, but in those countries the inhabitants of which are widely separated from each other, and who possess the means of subsistence in greater profusion than is absolutely necessary, it undoubtedly increases the population. We should not suppose, however, that it cannot contribute even amongst us, in any way to produce this increase. In substituting, during a given period, one infant who arrives at the age of maturity, for two who although they consume, die before they are able to produce any increase, the vaccine favours production; and consequently indirectly favours by the employment of its products, or the means produced by its employment, an increase of population. But this effect is very trifling in comparison with that usually attributed to the vaccine. All those measures by which the diseases of infancy are warded off, operate in the same manner; they moreover in suppressing one of the causes of death, lend additional activity to others. That in civilized countries, the most fatal epidemics produce but a transient diminution in the population; the vacancies which they create being speedily filled up, both by marriages and by births, which are proportionably more numerous than ever, and also by the influx of strangers who are induced to come in, by the numerous vacancies produced in the different professions, trades, &c. But if epidemics do not commonly diminish the population of those countries which they ravage, or at most only for a short period, they at least exert a manifest influence upon the population and its movements; an influence which varies according as the epidemic occurs annually, or at larger intervals. In the former case, that is where the epidemics are annual, as is the case along the banks of water-courses, or in the neighbourhood of marshes, the renewal of the population is observed to be more rapid, and the average term of life is shorter; there being very few who arrive at adult or old age. The population does not diminish, and for the simple reason, that marriages take place at a very early age, and in a given time, the number of births greatly exceeds that in other countries. The same space, which in a healthy country would be occupied by the same individual during a period of forty years, will in one in which the causes operating against longevity are particularly rife, be occupied by two or three different persons.

And in consequence of these fatal epidemics, the average term of life is reduced to twenty, and in some places even to thirteen years. But supposing the number of individuals to be the same in two different countries, yet their relative usefulness may be very different; in the one, we may have a poor, infirm, sickly population, immense numbers of whom perish previous to the performance of any productive act, and who resemble, if we may be allowed the comparison, a capital lost at sea. Whilst in the other, on the contrary, we have a robust, strong, vigorous class, who may in truth be termed the bone and sinew of the land, and who generally speaking live to an advanced age, or by labour obtain every necessary for themselves and families.

In the second case, or where an epidemic suddenly appears in any spot which has heretofore escaped its ravages, or even should it be characterized by unaccustomed violence in a country which has never been exempt from it, a very sensible diminution in the population will be observed, and immediately afterwards, *cæteris paribus*, an extraordinary increase in the number of births and marriages; such is the disposition to production at this period, that those unions which have remained uninterrupted, and from which no further increase was anticipated, have again become fruitful. Finally, not only the yearly number of deaths is diminished, but likewise the proportional number, as if in truth mankind had become more tenacious of life, or less liable to the attacks of the 'fell destroyer.' Hence arises the old saying, that 'all epidemics of a fatal character, are followed by seasons of great salubrity,' every thing, however, induces us to believe, that this fact exists only in appearance. We know, that the disease attacks generally speaking only weakly or sickly individuals, and that it consequently leaves a larger proportion of healthy, able-bodied persons, so that although it increases the relative space, it at the same time adds to the period of existence of the individuals remaining. Moreover, this latter change, whatever may be the cause, always exerts as is well known, a sensible influence upon the period of life, as well as upon the number of births."—*Archives Gén.* Dec. 1832.

45. *Mortality in France from Cholera.*—It is officially stated that the total number, (military excepted,) of those affected with cholera in France from its first appearance at Calais, March 15th, 1832, to January 1st, 1833, is 230,000, and the deaths 95,000.

CHEMISTRY.

46. *Acids of Nux Vomica.*—M. CARRIOL has obtained from the nux vomica two new acids. One of them exists in combination with lime, with which it forms a very soluble salt, which may be purified by successive solutions and crystallizations in water and alcohol. This salt dissolved in water, and treated with oxalic acid, is decomposed, and an acid differing from the igasuric is separated. The other acid has not been examined.—*Journ. de Pharm.* March, 1833.

47. *Analysis of Rice.*—MM. DARCET and PAYEN have verified by chemical analysis the existence in rice of a large amount of azote. This explains the eminently nutritive nature of that article of food.—*Journ. de Chimie Méd.* April, 1833.

MISCELLANEOUS.

48. *Epidemic Influenza in England.*—During nearly the whole of this month, (April,) a severe catarrhal epidemic has very generally prevailed in London, and many other parts of the country. But few persons have altogether escaped

its influence, although in many the symptoms have been so mild as to require for their relief and removal little more than the ordinary domestic remedies. In those, however, who had suffered previously from pulmonary complaints, the epidemic has in many instances been very severe, and not unfrequently fatal. Several cases have fallen under our own care, in which the patients, who had before been subject to bronchitis and asthmatic diseases, have been placed in danger by the attack of the prevailing malady. In the course of the last fortnight we have seen upwards of 150 cases; and, if we are to credit the reports we have heard, this is but a small number in comparison with that which has fallen to the share of many other practitioners. The disease has usually commenced with head-ache and a general feeling of oppression; febrile symptoms of greater or less severity, modified of course by the previous state and constitution of the patient, has quickly followed; cough, hoarseness, and soreness of the throat, with sometimes slight inflammation of the eyes, having either at first attended the febrile accession, or speedily succeeded it. In many instances the patient has complained of great lassitude, and a feeling of general soreness over the whole surface of the body, with pains in the arms and legs. The cough has generally been violent and tedious.

As far as our own observation extends, children have been much less subject to the disease than adults, and females much more so than males.

We are not aware that it has proved fatal in any case where the patient was before the attack in good health. We know that many fatal cases have been mentioned, but we have found, upon inquiry, that in all these instances the patients were invalids at the period of their being attacked with the epidemic, or far advanced in age, and likely to fall victims to any disturbance of their feeble and worn-out constitutions.

It has of course been found necessary to vary the treatment according to the age and constitution of the patient. With very few exceptions, however, general bleeding has not been required, and, when it has been unnecessarily employed, great depression has followed, and but little alleviation of the cough and oppression of the chest has been obtained by it. Mild purgatives, saline diaphoretics, occasional warm drinks, and confinement to bed for a few days, has appeared to be the most effectual and beneficial mode of treatment. An opiate at bed-time has generally been given with advantage. The disease is now on the decline, but in many persons who have been attacked the harassing cough continues, and appears to be but little under the controul of ordinary remedies.

Many persons, who have imprudently exposed themselves to cold soon after the attack, have suffered from severe relapses, the management of which we have found much more difficult than the original disease.—*London Medical and Physical Journal*, May, 1833.

49. *Election of a Member of the Academy of Sciences of France to fill the vacancy caused by the death of Baron Portal.*—A sort of concours has been held before the Academy of Sciences, for the vacancy recently created in that body by the death of M. Portal. The candidates, in memoirs, wherein they either gave a summary of their previous labours, or discussed some particular points of science, each in turn, displayed their claims to the honour, and exhibited their individual capacity. It was Broussais, whose name surrounded by a more brilliant halo than that of any other candidate, and who seemed to have less need for a repetition of his claims, who brought his competitors into an arena in which they had had no expectation of appearing. The contest was sustained with good grace by several, but it was evident that this sort of election was not relished by all. It is in truth much easier to make the most of the weaker side with closed doors, than when it is brought forth before an unprejudiced public, which does not lend itself to the *arrangements* of a society, illustrious it is true, but exceedingly incompetent to decide upon the merits of a question in medicine. Hence it was, that the partisans of the candidate who had in truth the

least *right* to, but the best prospect of attaining the object desired through intrigue or diplomacy, cried out against the academy for adopting a mode of election altogether unusual. However this may be, after the presentation of the two memoirs of M. Broussais, and those of MM. Esquirol and Breschet, M. Double, who, it had been announced, was unwilling to submit to this sort of contest, found himself obliged to yield to public opinion. This honorable candidate, being no longer able to decline the controversy, at last presented a memoir, entitled, "The Influence of the Nervous System in the Production and development of Disease." After this had been handed in, the committee presented the candidates in the following order—MM. Double, Broussais, Breschet. Thus we find occupying the head of the list, the name of the least scientific of all the candidates, whilst that of M. Esquirol, to whose labours science is vastly indebted, is not even mentioned! Let us hope that the academy in the investigation which it is shortly about to make, will show itself more enlightened than its committee.*

We think it our duty to republish the memoir of M. Broussais, read to the academy, notwithstanding it has been already published by several journals, inasmuch as the most general and most interesting question in medicine is there treated with the peculiar talent, for which the author is so distinguished in the investigation of the philosophy of our science. Notwithstanding the errors of judgment and of facts, which escape M. Broussais, in consequence of preconceived theories, there is always in the productions of so clear and vigorous an intellect, something to be learned. It is unfortunate that the memoir of M. Double has not received the same degree of publicity; were this the case, we should then be better able to appreciate the judgment of the academy. But the journal which has been the warmest advocate of this candidate, seems to shun so hazardous a disclosure, and has given us nothing more than an imperfect analysis of his paper. It is, nevertheless, very easy to perceive, in spite of the eulogies which have been paid rather to the *intentions* of the author, than to his work itself, the paucity of ideas, and the deficiency of principles, which some persons at the present day would designate by the epithet expanded, (*larges*,) from inability to characterize them by any other reputable term. We shall revert again to this subject, upon a proper occasion, and content ourselves for the present with referring such as are interested in it, to our report of the proceedings of the Academy of Sciences.—*Archives Générales*, Oct. 1832.

50. *On the Qualifications of a Physician.*—The following just remarks on this subject are from TIEDEMANN's Physiology; we copy them from a late No. of the *Medico-Chirurgical Review*.

That man is a scientifically informed physician who is well acquainted with, and has, as it were, appropriated to his own use, the results of all the inquiries made at different times by distinguished observers upon the symptoms, course and causes of diseases, and with the precepts of treatment which they have recommended and employed. To become a skilful practitioner, he must understand how to bring this knowledge into operation, and be ready in applying all its rules and deductions to each particular case. This most important talent can only be acquired by extensive researches and by diligent study at the bedside of patients. Cicero has well said, "Nec medici, nec imperatores, nec oratores, quamvis artis præcepta perceperint, quidquam magnæ laudis dignum sine usu, et exercitatione consequi possunt." The most important attribute in the character of a physician, and indeed of every man who is engaged in the

* The election took place on Monday last, when M. Double was chosen. There are fifty members of the academy; the following is the order in which their votes were given. Upon the 1st ballot, M. Double received 23 votes, M. Breschet 16, M. Broussais 10, and M. Esquirol 1. Upon the 2d, M. Double obtained 24, M. Breschet 22, M. Broussais 4. Ballot between MM. Double and Breschet. M. Double received 26, and M. Breschet 24. We have been informed that motives in no way connected with science caused the rejection of M. Broussais. We should have had nothing to complain of, if the academy had selected the candidate who stood next to M. Broussais in point of talent, and who of course possessed more right to the honour than the one elected.

active and practical employment of life, is, after the acquisition of sound theoretical knowledge, the power or faculty of distinctly and correctly perceiving the leading phenomena of the case before him, of tracing the relations of causes and their effects, of reasoning upon them, and of applying the deductions to the remedial treatment. There are many physicians who are excellent theorists, but who never become skilful practitioners; for with all their accumulated information, they know not how to recognise the individualities of a case, nor to reduce the symptoms to any general rule:—such are all merely book-men, who have acquired no skill in the sick room. On the other hand, there are physicians, and their number is very large, who style themselves sober and useful practitioners, and who treat all cases, after the analogy of previous ones, and the results of their experience in general, and employ, without being able to give any why or wherefore for so doing, certain remedies which they may have used on some former occasion with advantage. Such are the sheer empirics, the routine-men, the despisers of all theory, and the searchers after and triers of every new remedy proposed, by those at least of the same school. Now, although it may appear at first sight to be the easier method of treating diseases upon the analogy of former experience, in reality it is not so; because every new case has something specific and individual in its character; and to arrive at a successful therapeia, the physician ought to attend to the peculiarities which result from the differences of age, sex, constitution, mode of life, employment, and so forth, and to vary and modify his treatment accordingly. This is the business of sound theorising, and if so, then “to practise without theorising is, in other words, to practise without reflection.” There are several reasons which have led many practical men to reject all theory.—With many, the cause exists in themselves;—they are bad reasoners, and in their attempts to discover and to apply the precepts of sound logic to any case, they fall into errors, from the dullness of their perceptions, or from the poverty of their thoughts;—they therefore blame the system; and seldom think of their own incapacities and deficiencies. With others, the distaste arises from their observing the idle dreams and phantasies of enthusiasts, who assume the title of theoretical men, style the vagaries of their brains lofty philosophical speculations, and who have at different times attempted, and not unfrequently too have succeeded, in introducing a system of physic into the schools. But as soon as physicians have learnt to refuse all credence to mere fanciful notions, springing up from darkness, and as soon as they arm themselves with scepticism against such nonsense, by weighing it in the balance of sound reason, and rejecting it as the offspring of an unbridled imagination, then shall the vain strivings of all enthusiasts become more rare and ineffectual, and a wholesome and sound system of theory be no longer despised.

May the hope which Bacon expressed two centuries ago be soon realized—
“*Speramus et cupimus futurum ut medici nobiliores animos non nihil erigant, neque toti sint in curarum sordibus.*”

AMERICAN INTELLIGENCE.

A Case of Anastomosing Aneurism of the External maxillary Artery, treated successfully by Tying the Common Carotid Artery, by DAVID L. ROGERS, M. D. Lecturer on Surgery. Communicated by S. R. KIRBY, M. D.—This case occurred in a child, aged eight months at the time of the operation. At its birth a small pulsating tumour was observed in the centre of the right cheek, which continued to enlarge until it embraced nearly the whole of it.

It was bounded above by the prominent part of the malar bone; below by two thirds of the inferior edge of the inferior maxillary bone; posteriorly by the superior part of the inner edge of the sterno-cleido mastoid muscle, on a range from above downwards with the lobe of the ear; anteriorly, by a line drawn from the inferior part of the nostril, and terminating about one inch from the symphysis of the chin. The tumour pointed in two places, just above the ear, and at the angle of the jaw. It was irregularly convex, having its greater convexity at its posterior part, and gradually diminishing from behind forwards; its colour purplish, with several red spots on its surface. The child seemed otherwise in good health. The operation was performed in the presence of Drs. Mott, Baxter and Kirby, on Thursday, December 12th, 1832. An incision was made through the skin and the platysma myoid muscle, of about one and a half inches in length, in the direction of the inner edge of the sterno-mastoid muscle, but nearer to the trachea than to this muscle, which kept the external jugular vein at a greater distance; at the first incision a small artery was divided, which was secured with a ligature; the adipose tissue was cleared away, and very soon the sterno-thyroid muscle was partially exposed, at the outer edge of which, the sheath of the vessels was seen, this was punctured, and the artery secured with one ligature. No other vessels were tied, and the quantity of blood lost did not exceed a wine-glassful. In a short time a diminution of the tumour was perceptible. A stitch was made in the middle of the incision, and adhesive straps applied. The little sufferer was not much exhausted, it was placed in its mother's arms, and immediately began to nurse, with occasional restlessness. A gradual diminution of the tumour continued until it had entirely disappeared, and the child wholly recovered, and is now in good health.

New York, August 6th, 1833.

Case of Constipation successfully treated by the Introduction of Air into the Bowels. By GEORGE J. JANEWAY, M. D.—*July 7th*, evening. I was called to see H. M., who was attacked last evening with a severe pain in her abdomen, which continued the greater part of the night, and was relieved by laudanum and the application of a sinapism. She has had occurrences of the pain through the day. Two or three days ago, in consequence of imprudent exposure during her menstrual period, her menses were suddenly stopped. On the 5th inst. I had prescribed for her a bleeding, for an affection of the heart, under which she is labouring. She also took a dose of Epsom salt.

She now complains of severe pain around the navel, which is relieved by pressure; pulse full, hard, and frequent, such as is met with in hypertrophy of the heart; tongue moist, a little furred in the centre; skin of natural temperature; her cellular tissue is infiltrated with serum; abdomen somewhat swollen. Her pain was soon relieved by the exhibition of laudanum and ess. of peppermint; flannel wrung out in hot brandy and Cayenne pepper. Directed castor oil, $\mathfrak{z}\text{j}$.

July 8th. Her pain returned soon after I left her, and has continued. Her bowels are more swollen; pain as before; no pain on pressure in any part of abdomen; tongue, pulse, and skin as before. V. S. Z^{xxvj} .; fomentations of hops; calomel, grs. xij.; oil four hours after. Her bowels have not been opened since the 6th.

6 *P. M.* Bowels not open; vomiting occasionally; abdomen more tympanitic; pains more severe; respiration hurried and somewhat oppressed. Soda water; repeat calomel; injections of senna tea.

10th. Since the preceding date, all the symptoms have gone on increasing in severity, for which I directed at different visits, leeches and cups to abdomen, cups to small of back, injections of warm and cold water, emollient injections, calomel and senna tea, fomentations to abdomen, &c. all without success. Bowels are still confined, greatly distended with gas; pulse pretty much as before; tongue furred in centre and moist; skin nearly natural; breath excessively fetid, can be smelt at the distance of several feet; belches considerably; hiccup occasionally; vomits a dark, fetid, oily fluid; respiration frequent and oppressed; face pinched.

At this time I determined to try the effects of the introduction of air into the bowels. Accordingly I attached one end of a bladder to the tube of a bellows, while a glyster pipe attached to the other end was introduced into the rectum. The bellows were used a few minutes, during their use a fetid gas escaped from the rectum, in such quantity as to be smelt in different parts of the room. Immediately after the removal of the bellows, the patient passed by stool a pint of very fetid, dark fluid, together with a considerable quantity of gas. She felt somewhat relieved. A short time after, the bellows were reäpplied with similar effects. A drop of croton oil was then given, and another at the expiration of two hours; the bellows were used twice afterwards.

Evening. Patient is much relieved; has had six passages by stool since the morning, she passed at the same time great quantities of gas. From this time she speedily recovered from her bowel affections. Her stools did not become of a natural appearance till some days after.

New York, August 1, 1833.

Case of Prolapsus Uteri from Dysmenorrhœa, together with the Formation and Expulsion of an Organized substance. By JOHN W. MALONE, M. D. of Quincy, Middle Florida.—On the 30th September, 1831, I was called to see a lady, who was said to be suffering very much from a *prolapsus* of the womb. Upon my arrival, she informed me, that her menstruation had been very scanty and painful for a day or two previous, and that last night her symptoms were very much aggravated—in fact, to use her own language, she said “her body came down,” meaning by that a *prolapsus uteri*. She complained of great pain in her back and lumbar region in general, and also at the pubis and in the groins, darting sometimes upwards to her left side; there were bearing-down pains, and a sensation as if something were protruding per vaginam, great difficulty and constant desire to void urine, which came away by drops only, her sufferings were much increased whenever she was raised in bed or stood erect, she was quite nervous, and her bowels were obstinately constipated. The pulse was perfectly natural, no gastric derangement except once and a while she was troubled with flatulence.

I gave her an anodyne draught as a palliative until I could investigate her situation further—this gave her but temporary relief, and in the course of an hour or two I proceeded to an examination, and found the uterus prolapsed as anticipated. Not having a pessary at hand, I gave her ol. ricini.; ordered cold applications, together with spts. nitre and laudanum at bed-time, and enjoined perfect rest with the hips elevated, in order to keep the uterus as much as possible in situ.

31st. Had spent the night rather less unpleasantly than the preceding, but still she was in great distress. The difficulty in urinating was more obstinate,

amounting almost to a total suppression. Upon the introduction of the catheter, a large quantity of turbid urine flowed off. The menses appeared during the night for a little while. The darting of the pain from her groin up to her left side was more constant, no evacuation from her bowels had been effected by the oil. I immediately ordered an injection, and after its operation introduced a sponge pessary, and enjoined it upon her to remain in the recumbent posture; she felt much easier, and dropped off into a short but refreshing slumber: towards evening the pain again returned, and became so intolerable that the pessary was removed. Astringent injections were then freely thrown up the vagina, and an anodyne draught of camphor and laudanum was given at bedtime.

October 1st. Found my patient sitting up in bed, had slept well during the night, but this morning had slight pains, which were attended with the expulsion of a thin membrane of a pearl colour; feels now entirely free of pain, and has no difficulty in voiding her urine, &c. Still continue vaginal injections, remain quietly in bed, and keep the bowels open with senna and the neutral salts. Two days afterwards I visited her, and found her still improving, though she complained of weakness and sluggishness of the bowels: ordered a plain and nutritive diet, mild laxatives and gentle exercise, together with a preparation of iron and myrrh, as there appeared to be a want of tone in the whole system, and the uterine in particular.

She continued this course for more than a month, and the last time I saw her she was enjoying very good health, and had not had a return of "*prolapsus*" since.

The only inducement to publish this case, is the circumstance of its being the consequence of "painful menstruation," which to me is self-evident, as she never was similarly affected before; and from the sudden production of it; upon the occurrence of the painful efforts common to this disease; and from the prompt effect of the astringent injections, it clearly manifests a want of tone in the uterine fibre, and a relaxation of the parts, that readily yielded to the bearing-down pains of this distressing affection.

Hot Springs of Virginia.—A correspondent has favoured us with a detailed account of the medicinal value of these thermal waters in three cases of very obstinate disease, of which we have thought proper to make a digest. In the group of mineral waters commonly known under the appellation of the Virginia Springs, and which are scattered in the southwest part of the State, over an area of forty-five miles diameter, there is a small cluster called the Hot Springs, the temperature of which ranges from 99° to 108°. The popular belief is, that they are extremely useful in rheumatic and many other affections, when used as a bath, or by submitting the diseased region to the stream of the spring whose temperature is 108°. This establishment has recently passed into the hands of a highly enterprising and intelligent proprietor, Dr. Goode, who by accommodations actually existing and by such as are in progress, promises to make this a retreat well worthy of the invalid, or the man of leisure who wishes to spend a short time from home.

The first patient, Mr. Corrie, of Charleston, S. C., aged 18 years, was afflicted in 1832 with a rheumatic affection, which rendered him as helpless as an infant; he was unable either to dress or undress himself, and whenever he changed his place, he was under the necessity of being carried. Having reached the White Sulphur Springs on the 28th day of June, he remained there until the 9th of July, drinking daily eight or ten glasses of the water, by which he was sufficiently improved to walk with the aid of crutches, three or four days before he left there. He then went to the Hot Springs, distant thirty-five miles.

At the latter place he took on alternate days the hot stream as a douche, and the sweating bath until Sept. 2d. In two weeks after he instituted this process he laid aside his crutches, and resumed the unaided use of his limbs, and at the

expiration of the whole period, he was so fully convalescent, that being caught in a storm at sea on his return home, he assisted in the securing of the vessel.

The second patient, Mr. Lockwood, from his own account, seems to have had an extensive dartsous affection which for ten years had defied the best medical counsel of Charleston, S. C. The incipient eruption was in small specks, covered with a scale, and which increased in size until they joined. The whole body was subject to this affection; the eyebrows, lips, and nostrils, without intermission—the other parts of the face and hands not so much so. The itching was so extreme as to produce almost derangement; the scales rubbed off at night under this excitement would fill a small saucer, and the night-dress was stiffened with the discharge of blood. The scales were renewed every twelve hours. The only application which afforded any comfort was the white of a fresh egg rubbed up with a tea-spoonful of sweet oil or fresh cream, any rancidness in the latter produced an irritation like a fire-brand.

This patient is now on his third annual excursion to the springs, having in each instance used the White Sulphur water for ten days in the outset, and then gone to the Hot Springs, where he has resorted on alternate days to the spout of warm water and to the sweating bath. He has now not a vestige of the complaint, and there is no indication of a return of it, (Aug. 7, 1833.)

We have also the account of another case of rheumatism, in the person of Mr. Booker Preston, of Bedford, Va., which began in 1827, and which seems to have been of a very severe and enduring character. It was, however, also relieved entirely by the use of the pool called the boiler, at the Hot Springs.

W. E. H.

Description of a Safety Stirrup. By SAMUEL JACKSON, M. D. of Northumberland, Penn. [Communicated in a letter to the Editor.]—The business of the practical physician is not merely to prevent or cure diseases, but also to obviate all the casualties to which we are liable in the journey of life; hence, though the present paper may not be quite medical, or pertain, very strictly considered, to the pages of your journal, yet inasmuch as it recommends the means of safety to your numerous readers, most of whom are country practitioners and riders on horseback, it will not, by them at least, be thought out of place. Were I to present them with an effectual preventive or cure of hydrophobia, how great would be their exultation; and yet what we are now recommending might have prevented more death and distress, in this neighbourhood at least, than has ever resulted from rabies canina. Not one case of this disease has been known within a radius of fifty miles from this place, and probably not within a much greater distance, for the last half century, while, within this very vicinity, and within a very few years, the most distressing lacerations and even death have been the sad consequences of persons being dragged by the stirrup.

It is generally supposed that the spring stirrup, which opens at the side, affords safety in these cases, and there is an extract from one of my letters in the Medical Recorder, Vol. XI. p. 203, in which it is highly recommended as securing the exit of the foot, let the rider fall in whatever way it is possible. But we have since learned from the actual experiment of falling and hanging by the stirrup *in propria persona*, that our opinion, so confidently advanced, is utterly erroneous.

After using the stirrup for many years with the most comfortable assurances of safety, I was at last thrown, and my foot was held fast by it, while my head and shoulders rested on the ground. In this dreadful situation, my horse, though young and high-spirited, stood quiet by my side, while with infinite labour and pain, I extricated my foot. I was then told that the rust of the hinge was the cause of its refusing to open, but this was a great error, as was proven by the following decisive experiment.

The hinge was well greased, and made to work with very slight force; I then extended myself on the carpet with my foot in the stirrup, and giving the

leather to my servant, I found it absolutely impossible to open it with my foot. The operations were varied in every way in which it was thought possible for a man to fall from his horse, and with the same result. The foot turns quickly round in falling, and hangs by the foot-piece of the stirrup.

I mentioned these things to my talented friend, Mr. Henry W. Snyder, of Selinsgrove, son of the late Governor of Pennsylvania, and he quickly made me a pattern of a stirrup, which I have since procured to be made by George Taber, of Philadelphia. It can be easily understood from the plate. Fig. 1, the entire stirrup. Fig. 2, a side view. Fig. 3, the foot piece.

Fig. 1.

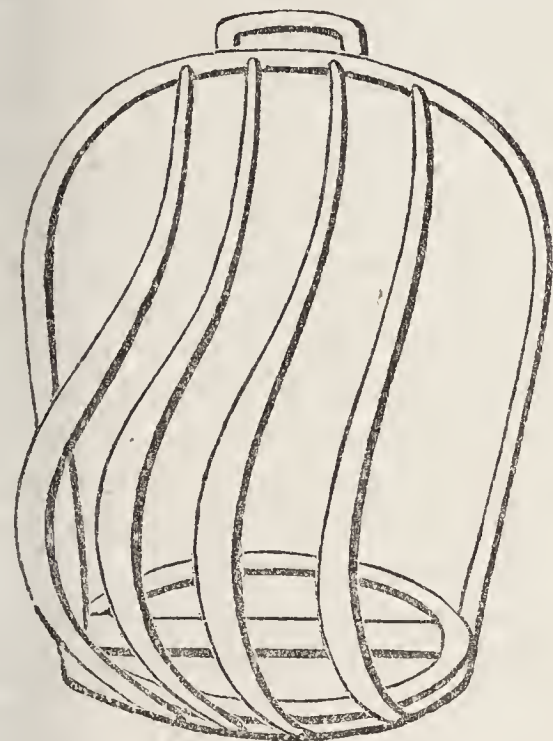
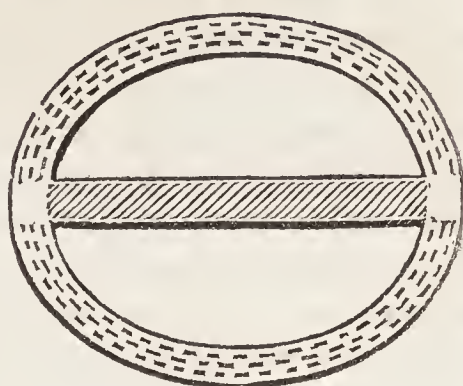


Fig. 2.



Fig. 3.



For an adult, three of the upright or safety irons are sufficient, but as the stirrup may be used by very young persons with small feet, they ought to be very close, and five would be required. These safety bars may be an inch broad. In order to afford him foot-hold, the foot piece ought to be broad, and the opening in it guarded by a bar in the transverse diameter, as seen in the plate.

We cannot recommend this as a very handsome part of a horseman's caparison, but it is certainly not very unsightly; and until something better be invented, we beg leave to obtrude it upon the attention of all who would ride without fear of the deplorable consequences of being dragged by the common stirrup. Nearly all the evils attendant on human life are the immediate or remote consequences of neglecting either the moral or physical laws, by which our safety is ensured; and if any one reads this paper without availing himself of this cheap and easily procurable prophylactic, let us refer him for further instruction to one of the best books that ever saw the light—Combe "on the Constitution of Man." "We ought," says this author, "to trace the evil back to its cause, which will uniformly resolve itself into infringement of a natural or moral law; and then endeavour to discover whether this infringement could or could not have been prevented, by a due exercise of the physical and mental powers bestowed by the Creator on man."

Case of Incongruous Twining, (Nosology, Good.) By THOMAS J. CHARLTON, M. D. of Bryan County, Georgia.—I was called to visit a woman belonging to Mr. Clay of this county, who was said to be nearly nine months advanced in her third pregnancy, and to be suffering under a sudden affection of the womb, which her attendants supposed to be a prolapsus. On examination I found the lower extremities of a foetus in the vagina, it was extracted with no difficulty and with the slightest exertion. Upon making a section of the umbilical cord no blood issued, nor had there been any discharged from the uterus before I saw her, neither had she had the slightest pain; the symptoms which alarmed

her and occasioned my being called, was a sensation of faintness which I attribute to apprehension of danger excited by the nurse. The fœtus was not putrid, but had evidently been dead some weeks; it was apparently one of the seventh month, and was in appearance and to the smell as if it had been preserved in pyroligneous acid; the viscera were much diminished in size, and externally it consisted merely of the integuments closely applied to the bones. As there was neither pain or flooding, I did not deem it proper to introduce the finger into the womb, fearing that the premature expulsion of another child, the motion of which I plainly felt on the application of my hand externally, might be caused by such interference. I directed her to be kept quiet, and that I should be immediately summoned should any of the precursors of labour occur. For eight days she was without any symptoms, on the night of the ninth labour came on, and the delivery of a child healthy and of the full time took place before I could see her. On examination of the placenta I found the cord of the former birth attached to the side, and that of the latter to the centre.

I am aware that many cases have been mentioned by writers of twins born at remote periods from each other, but what I thought remarkable, and which has led to the report of the above case, was, the absence of pain, and to all appearance of contraction in the expulsion of the dead fœtus. The uterus has been said to be "a life within a life," and the occurrence here mentioned would give some confirmation to its supposed powers of independent resolve, as well as action; for the casting off of the dead fœtus without the usual means of pain and contraction, would imply in some degree a consciousness that such means were not fitted for the present case, as tending prematurely to expell its remaining contents. Or to speak more accurately, I may say, that the above circumstances are additional evidences that all the organs, and most especially the uterine system, have the faculty of adapting themselves to contingencies and abnormal occurrences.

On the Pathology of Cholera. By CHARLES A. LEE, of New York. [Extracted from a letter to the Editor.]—I found at a very early period, that the pathology of cholera was likely to be a subject of warm dispute among our physicians, as it has been in Europe and Asia, and I endeavoured to keep my own mind perfectly unprejudiced, while observing and investigating the nature of the disease, that I might arrive at correct conclusions. Being fortunately placed in the most favourable circumstances to observe the disease, and pursue post mortem examinations, I endeavoured to improve them to the best advantage; and the numerous facts which I have collected go to confirm me in the opinion that the phenomena of cholera can only be satisfactorily explained, by the existence of an intense irritation of the gastro-intestinal mucous membrane. It was a fact very generally observed during the epidemic, that, hypercatharsis was often caused by laxative and purgative medicines in ordinary doses, and all who had opportunity of treating the disease to any extent, acknowledged the danger of administering such articles. For the same reason, crude vegetables and other indigestible food, (which acts as foreign substances,) were proscribed, and the most bland diet recommended. Within my own knowledge, instances were frequent where an attack of cholera was brought on by a cathartic, of which I will relate a few as examples.

Miss R., a young lady of respectability, on returning from the city towards the close of the epidemic, took a dose of bilious pills, on going to bed, and was attacked with violent diarrhœa in the night. In the morning early, she was in a collapsed state. Previously to taking the pills, she was in perfect health. She died. Mr. and Mrs. L., by the advice of a neighbour, took a large dose of epsom salts for two mornings in succession; hypercatharsis followed. They were removed to the hospital, where both died. J. C. complaining of slight nausea, took, by the advice of a physician, an emetic of tart. antimony; a violent attack of cholera succeeded, from which he with difficulty recovered. J. H. was advised, by way of precaution, to take a dose of physic. He took calomel and

jalap, āā. gr. x.; a violent diarrhœa succeeded, and terminated in collapse. Numerous other cases of a similar kind could be given, but it is unnecessary. So generally acknowledged is the existence of this morbid irritability of the gastrointestinal mucous membrane in this disease, that all prophylactic measures, both dietetical and medicinal, appear to be based upon it.

Another fact which early led me to the belief of an exalted action of the secretory vessels of the mucous tissue, is the analogy existing between the symptoms of cholera and those caused by the acrid poisons. Of several cases which I might relate, I can give at present but the two following. In January, 1828, I was called to see a delicate woman who had taken an overdose of tart. ant. I found her with features shrivelled, a livid areola about the eyes, which were sunken, voice a whisper, pulse imperceptible, great jactitation, vomiting and purging a colourless fluid without smell, cold sweat over the whole surface, and violent cramps in the muscles of the extremities. In July, 1832, I was called from the cholera hospital to visit a young woman who had swallowed, a few hours previously, half an ounce of arsenic. On seeing her, had I not known the cause of her attack, I should have had her immediately removed to the hospital, as a well-marked cholera case, as she had all the symptoms of a patient in the collapsed stage. Here then are two cases of intense concentration of innervation upon the mucous membrane of the stomach and intestinal canal, from the action of well-known irritants, and the symptoms were those of cholera. Is it possible that a directly opposite condition of the same membrane, would give rise to the same phenomena?

The opponents of this pathology of cholera appear to me to level all their arguments against a phantom of their own creation. They stoutly deny the existence of INFLAMMATION, which few or none contend for, while they frequently concede, which is all we ask, the existence of a high grade of *irritation*. If life be sufficiently protracted after an attack of malignant cholera, the latter may, and generally does terminate in the former; but that any pathologist should seriously look for the traces of inflammation in a disease of six or twelve hours standing, is very strange. Post mortem appearances sustain most unequivocally the doctrine of irritation, so far as its pathology is understood; for it should be borne in mind that in cases of sudden death from large doses of arsenic, colorations and other marks denoting inflammation, have been entirely wanting.

New York, Sept. 4th, 1833.

Case of Cancerous breast, with Partial Ossification of that Organ. By JOHN MACLELLAN, M. D. of Green Castle.—Mrs. H——, aged fifty-eight years, had a cancerous breast, which I extirpated on the 18th of July, 1831, assisted by Drs. M'Gouvin and Green. It was of enormous size, and had been enlarging for twelve years, and weighed thirteen pounds. It was ulcerated on the surface in two spots, and there were collections of cancerous matter in several places throughout its substance. What was very remarkable, however, in this case was the existence of bony deposits in the centre of the breast of several inches extent in different directions. I have some of this part of the breast preserved in alcohol, in which the bone is very manifest. The artery next the sternum was very much enlarged, and bled profusely when cut. The other arteries were as usual. The glands in the axilla were not enlarged. The wound healed in a great measure by the first intention. We saved skin enough to cover it, and brought it well together by ligatures and straps of adhesive plaster. The breast was painful for a considerable time before it was taken off, and the weight of it was oppressive. It extended down to her waist, and in walking she supported it with her hands. This woman never had any children, though married when young, and her other breast was small and not pendulous.

Case in which a Stiletto Remained for Twelve Years Projecting into the Brain.—In the pathological collections belonging to the Hospital Santa Maria Nuova, at

Florence, there is a portion of a parietal bone in which the point of a stiletto is projecting through the inner table nearly an inch. This was found so at the patient's death. The scalp had healed over it, and the injury occurred twelve years before the patient's death.—*Med. Magazine, Sept. 1833.*

Cases of Periodical Diseases treated with Ergot, in Mississippi, 1825. By HENRY PERRINE, M. D.—CASE I. Joe, a negro, taken with a chill and fever, Tuesday, 5th July, 10 A. M. which lasted till the middle of the afternoon. A dose of calomel given during the hot stage acted as emetic and cathartic; discharges copious, but not much vitiated; sleepy at night.

Wednesday.—Took a large table-spoonful of Peruvian bark this morning; chill and fever worse to-day; tongue still nearly clean. *Night.*—A dose of calomel and opium at bed-time; half a pint of strong infusion of quassia to be taken in half-gill doses every two hours while awake.

Thursday morning.—Calomel has not operated as a cathartic. R. ʒj. powdered ergot to be taken before chill time. *Afternoon.*—No chill, no fever, no catharsis during the day; lips are breaking out; gums becoming sore. R. A dose of salts, which at night operated well. Two worms were passed.

Friday.—Says he is well except weakness.

25th July.—Still well.

January 1st, 1826. Has not relapsed.

CASE II. John, a mulatto. *Saturday, 9th July, afternoon.*—Slight chill and fever.

Monday forenoon.—Severe and long chill and fever. Took the emetico-cathartic of salts and tart. ant. during hot stage, followed by Epsom salt and magnesia in the afternoon, and calomel at night.

Wednesday 18th.—Took three doses of ergot, each fifteen grains, in two hours previous to the chill, which came on between 9 and 10 A. M. and the fever lasted till in the afternoon.

Friday 15th.—Has taken this forenoon, in four doses, seventy-five grains of ergot, which induced no sickness, and have not been followed by either chill or fever.

Monday, 25th.—Continues perfectly well.

January 1st, 1826.—Has had no relapse.

CASE III. Lucy, a negress, was sick at the same time with Joe, but was cured by bleeding, purgatives, and bark. After spinning several days, a *head-ache* came on in the afternoon of each day, which was soon accompanied by a slight fever, not relieved by continued purgatives.

21st July.—Took fifteen grains of ergot four hours previous to the expected paroxysm, which puked her in half an hour; and the next equal dose having the same effect, I gave her, at forty minutes apart, three doses of ten grains each, with a little pepper. Neither puked her, nor has her fever or head-ache returned to-day.

25th.—Has taken nightly laxatives—head-ache has not returned.

January 1st, 1826.—No relapse.

CASE IV. Leah, a mulatto woman, twenty-five to thirty years old, mother of four children. Last summer delivered of twins at seven months, both dead. Has had but four or five menstrual discharges since; in all coagula with pain at "the bottom of the belly." A few weeks since was attacked with *periodical head-ache*, for which she was depleted very profusely, and repeatedly by venesection, emetics, and purgatives, without entire relief. Has had for a few days past an evening recurrence of the same head-ache. Says that she has been subject to it every summer as long as she remembers since womanhood.

25th July.—Yesterday catamenia came on. To-day very painful, with expulsion of coagula. To-night feels tumid in the hypogastric region—has taken two doses of camphor without affecting the pain in her head. R. Four fifteen-grain doses of ergot at intervals of ten minutes each. After second dose, complained of increased uterine pain for a minute, at intervals of five minutes, but says her head-ache is principally gone.

26th.—Waked this morning by severe uterine pain, which was relieved by local heat. Menses did not flow during the night, but to-day are natural in quantity and quality. Drank horehound tea through the day.

September, 21st.—Has continued free from head-ache.

January 1st, 1826.—No relapse.

Remarks.—The male cases may be questioned. The female cases were evidently cured by the ergot alone. I shall experiment with the ergot again under similar circumstances.

Campeche, September 10th, 1833.

Note on the supposed efficacy of Peruvian Bark as an Antidote to Arsenic. By HENRY PERRINE, M. D.—I perceive under the head of American Intelligence, in the May No. of your Journal, a 'note' to yourself "On the Peruvian Bark as a counter-agent to the Poisonous Effects of Arsenic," which was elicited by the outlines of my own case in your number for November last. The note itself simply contains the report of an unknown third person's having successfully treated several cases of poisoning by arsenic, with large doses of Peruvian bark and milk, without stating whether they were followed by vomiting, and thinks it therefore worthy of inquiry how far the action of the poison may have been checked by the Peruvian bark in my case. Hence, in this note to yourself, I say, that in my opinion the powdered Peruvian bark had in my stomach about the same effect as an equal quantity of pine saw-dust, chesnut charcoal-powder, ground Indian corn, or any other comminuted matter with which the undissolved arsenic would as readily mix, to which it would as firmly adhere, and with which it should as soon be carried out of the stomach by vomiting. As milk by coagulating in the stomach is infinitely preferable for these purposes, I drank it abundantly, but hurried out the coagula, and their enveloped arsenic, as soon as formed, with mucilaginous drinks and blue vitriol—of which seven doses were taken in rapid succession. Having no faith in antidotes, as soon as the vomited fluids exhibited no traces of arsenic, I tried to make the remaining poison travel through my intestines as fast as possible; and as calomel in pills was the only purgative which my stomach would retain, I continued it aided by numerous glysters, until the discharges from the bowels no longer turned green with a solution of the sulphate of copper, which occurred on the morning of the fourth day. I should nevertheless have probably died, had not the magnanimous mercury, at the most critical period, pervaded my system and equalized its circulation; nor was that the only dangerous epoch in which I have owed to this noble medicine the continuance of my feeble existence.

Consulate U. S. A., Campeche, September 10th, 1833.

St. Augustine, East Florida, as a Resort for Invalids.—The Twelfth No of our esteemed cotemporary, the *Medical Magazine*, contains an interesting communication from Dr. L. V. BELL, in which the statements hitherto made of the propitiousness of the climate of St. Augustine to persons labouring under pulmonary affections are directly controverted. "St. Augustine," observes Dr. Bell, "like all the settlements on our southern frontier, has been the occasional place of resort for northern invalids from time immemorial, but it is only since the change of flag in 1821, that any considerable numbers have visited it, and only within the last four or five years that much attention has been directed to it, as possessing any peculiar advantages over the southern states generally. This late notoriety is justly and almost entirely ascribable to the efforts which have been made to attract public attention and create an artificial reputation for the place, by the publication of such statements and circulars as have been alluded to, which have been very extensively circulated throughout the New England and middle states. In fact, of about one hundred invalids who were there in the winter of 1830-1, I had from personal acquaintance, reason to know that more than three-quarters were immediately induced to give it the preference from the influence of these accounts.

"In the present communication the writer regrets that many of the statements heretofore made to the public must be directly controverted. He would however premise that he does not intend to call in question the veracity of those who have given different views, many of which he is aware were predicated on supposed authentic data, the real errors of which will be pointed out, while other flattering conclusions were drawn and published after so very limited residence and research, that subsequent more extended opportunities must have shown the writers how much they were themselves deceived, and how much in turn they had misled the public.* I can pretend to offer, as respects the climate, only the results of personal experience during one season, and that no doubt one of rather unusual severity, but I took every caution scrupulously to avoid all error in my own observations as well as to corroborate every statement heard, as to the inclemency of former winters, by inquiries among *unprejudiced* and *uninterested* citizens who had been residents for a greater or less period of time.

"The *city* of St. Augustine, (it being a corporate municipal body,) is situated in latitude 29° 51' N. on the eastern shore of the cape or peninsula of Florida, and on a bay formed by the junction of three short tide rivers, the Matanzas, St. Sebastien's, and the North. It is at the distance of about two miles within *the bar*, which stretches from the main land to Anastasia Island. This bar renders the entrance or exit of vessels drawing more than 9 or 9½ feet of water impracticable, and is said to be constantly changing its direction, leaving a very circuitous channel much influenced in its depth and direction by the tides and winds. The attempt is rarely made to enter without a pilot; and from the natural obstructions, as well as the want of capacity, indolence or absence of competition among the pilots, the harbour is justly esteemed one of extreme difficulty. It is no unusual circumstance for vessels to be detained at the bar for weeks, (a most tantalizing situation for the sea-worn invalid,) and they have occasionally returned or changed their destination, having waited in vain for the pilots.

"The surf breaking on the outside of Anastasia Island in certain winds is tremendous; when heard in the city it resembles very much the roar of Niagara Falls, a circumstance not a little annoying to the sick before the ear becomes accustomed to the sound.

"The city, which is surrounded by a small creek called the Mari Sanchez, swollen however into a considerable stream at high water, consists of four or five streets, from sixteen to twenty feet only in width, running nearly parallel to the Matanzas, about half a mile in length, and intersected every few hundred yards by others crossing at right angles. A considerable open space is left near the middle of the city which is dignified with the appellation of *Plaza de la Constitucion*, in the centre of which is a monument of plastered shell rock, built in commemoration of the constitution granted to Spain by her monarch. Around this square the three or four churches, and public buildings are situated. The streets are in general built upon pretty compactly, but a great number of the habitations are in a deserted and completely dilapidated condition. The exterior of the buildings is of a most unpromising description, resembling at a general view an irregular conglomeration of roughly plastered hovels; and in fact, the entire aspect of the place is that, which is actually its case, of 'having seen better days.' There are, however, some half dozen of the residences, which are tolerably convenient and comfortable. The dwelling-houses generally bear

* "The late Dr. James Cox, who left Philadelphia, and settled in practice at St. Augustine, the climate of which he, it would seem, vainly supposed, had cured him of a chronic bronchitis under which he laboured, and whose circular giving an overrated account of the prospects of that place in pulmonary maladies, (though his statements were far from being so exaggerated as those of some others,) were widely spread in the *Journal of Health*, *N. A. Med. and Surg. Journal*, &c. had the magnanimity to declare that, had he known as much of the climate of Florida at the time of publishing his circular, as he subsequently learned, nothing could have induced him to advise an invalid to seek such a situation. He also expressed to me his intention of informing the public of the errors in his first statements and opinions. Whether or not the community were ever disabused in relation to this subject in the same channels in which the accounts were first published, I have not learned.

some marks of the Spanish taste, as in having the entrance through a high courtyard, balconies projecting over the street, &c. There is, however, too little uniformity in external appearance or internal construction to allow their being referred to any one model. The floors of many of them are constructed of *tabbia*, a mixture of lime and shells, which becomes in time much consolidated and smooth, but in winter is cold, damp, and uncomfortable. The material of which almost all the houses are constructed, is a conglomerated shell rock, which is found abundantly on Anastasia Island, within a few miles. When first removed from the quarry, its structure is so soft as to allow of its being prepared for building by being hewn with the broad-axe, but it attains a considerable degree of solidity after long exposure to the atmosphere.

“This is the only kind of *rock* found in this section of Florida. The whole surrounding country is a perfect level of sand, intermingled with broken pieces of shells, and destitute of every mineral production, even the smallest sized stone. No natural elevations, even of a few feet, are to be found.

“The agricultural productions of the vicinity are almost nothing. A little market-place is furnished with one beef, uniformly of miserable quality, which is adequate to the consumption of the whole place, with fish of some variety, including a small and indifferent species of oysters, and rarely with pork and poultry. Mutton is never seen; sheep, it is said, being immediately destroyed when turned to pasture, by a small sharp-pointed bur called the *cockspur* which grows every where. Garden vegetables of all kinds, as well as hay, butter, apples, &c. must be brought from the north, and are generally of indifferent quality and high prices. The market is so limited and the number of vessels arriving so small, that there are frequently long periods in which some of the most necessary and essential articles cannot be obtained at all, or only at the most exorbitant rates; butter for example, at seventy-five cents per pound. With a soil and climate capable of producing almost every article of vegetable use or luxury, such is the indolence and want of enterprise of the great bulk of the population, that they prefer subsisting day after day on fish, oysters, and the sweet-potatoe, to the trouble and labour of raising breadstuffs, garden vegetables, poultry, &c.

“The only article of export, and what *with the exception of invalids* forms the only article of *traffic* of the population, is the crop of oranges; of these one hundred and twenty thousand are raised in an average year, worth ten dollars per thousand on the spot, and there is always a very ready demand for them. But strange as it may seem, where the land is cheap, the growth of the trees quick and easy, seven or eight years from the seed being enough to render them profitably productive, the quantity raised per annum increases very slowly, almost no new plants being set out.

“The population of St. Augustine, by the return of the marshal at the census of 1830, was as follows:—

White males	570	Slaves	474	} Total, 1708.
White females	538	Free blacks	126	
<hr/>		<hr/>		
Whites,	1108	Coloured,	600	

An amount very much below the statement of any gazetteer or account which I have seen. Of this population, a great proportion of the whites, probably not less than seven to eight hundred, are *minorcans*, as they are called. They are descendants of a colony of redemptioners, brought out from the Balearic islands, in 1785, by one Turnball, an Englishman, to New Smyrna, or Musquito Inlet, about sixty miles south of St. Augustine. From fear of being permanently retained as slaves, and finding him unable to fulfil his contract for their support, they abandoned him in a body and came to St. Augustine, where they have since lived almost unmixed with the Americans, retaining all their original ignorance, indolence, and superstition. They speak a kind of *patois*, between the

Spanish and Italian, and are without exception Catholics with the feelings and views of a century or two gone by. From what has been said it will be readily inferred, that almost all those articles which are so comfortable and almost essential in sickness, are to be had only from a great distance, or what happens continually in so small a market, not to be obtained at all. Milk, usually considered so important an article of diet in consumptive cases, was not to be procured except with much difficulty, and in very small quantities; so much so, that probably no invalid there attempted to make it an exclusive, or principal article of food. In fact, the sick are constrained to do without those thousand articles of caprice or utility, which at the north are ever ready to soothe the fancy, or alleviate bodily distress.

"The privileges of taking exercise at St. Augustine are few and inconvenient. After leaving the immediate bounds of the city, there is nothing to interest or amuse the mind. A perpetual succession of scrubby woods and barren sands, without one pleasant landscape or agreeable view, presents few inducements to prompt the invalid to embrace that valuable auxiliary in chronic disease, exercise in the open air. The means of gestation are few and very expensive. Horses are almost unknown, their place being very imperfectly filled by a breed of Indian ponies about the size of the common jackass. Carriages of every description are hardly to be obtained, nor any kind of boat, the rowing and sailing which is often an agreeable and salutary mode of exercise, except the miserable, inconvenient, unsafe *dugout* or log canoe.

"In short, (excepting the climate, whose claims to attention we shall shortly examine,) St. Augustine possesses in a most eminent degree the deficiency of every thing which can amuse, improve, or restore the invalid, and the presence of every thing which can serve to irritate his feelings, impoverish his estate, and disappoint his hopes.

"I have gone considerably into these statistical particulars respecting this place, being induced by the fact that all our gazetteers give very erroneous accounts of it, several of them stating its population to be from four to five thousand, one placing it at the foot of a *considerable hill*, &c.; and still more from the circumstance that the circulars addressed to invalids, for obvious reasons, attempt to keep up the impression that it is a large flourishing city.

"The statements respecting the climate of this part of Florida, which have been repeated in all the various accounts, have had as a pretended basis actual thermometrical data. But it may be, that even these which at first sight appear incapable of misleading, agreeable to the old axiom that 'figures cannot lie,' are in fact easily distorted, so as to convey very erroneous impressions as to the value and expediency of the situation for the valetudinarian. The error which has most prominently affected these statements, has arisen from the unfair, injudicious exposure of the instrument from which the observations were made. The published memoranda have been those abstracted from the journal kept by a military regulation of the government at the barracks. The thermometer, apparently an ordinary, cheap, American instrument, is suspended in the second story of an immense stone building, at the side of a door which forms a communication between two large rooms, each of which has two open windows on the S. E. and N. W. sides. The whole story is surrounded by a roofed piazza, twenty or twenty-five feet in width, so that in fact, the thermometer is not within some forty or fifty feet of the open air. A moment's reflection will convince any one at all acquainted with thermometrical observations, of the absolute inutility of such an arrangement to give any thing more than an approximation to the actual temperature.

"The other instrument from which, I believe, some of the published data were derived, is suspended, if possible, in a still more objectionable and absurd situation; that is, under a piazza of stone, the whole interior of which is white-washed, so that a constant reflection was thrown upon it when the sun shone. Both of these instruments, in every instance in which I compared them, indi-

ated a considerable difference between each other, as well as varying from the one from which I kept the register below.

“The hour of the day, (2 o'clock,) at which the middle observation was taken, is far from expressing the highest range of heat, and it was solely on the ground of convenience that its selection was defended. In a series of observations made for the purpose, I invariably found a fall of the thermometer after about 1 o'clock. This error has given the climate an appearance of considerably greater uniformity than it actually possesses, and it has been on this point, its boasted evenness, that visitors have been most deceived. The Rev. Dr. Porter, of Andover, whose letter on the climate, &c. of St. Augustine, was circulated by those interested far and wide, was induced to believe, (though I am unable to divine on what grounds, or from whom he could have derived his information,) that a change of 12° in the twenty-four hours was very unusual, and that changes greater than this were almost unknown. So far from such being the case, the examination of my table of memoranda for Jan. and Feb. 1831, will demonstrate the fact that there was hardly a day in which as great a change was not noticed, as well as repeated days when the variation was from 20° to 30° in the twelve hours of day-time; and had the observation at meridian and at the coldest part of the night been recorded, the inconstancy of the temperature would have been still more palpably striking. Some sudden changes will be noticed in the table which could not be surpassed in the mutable climate of New York.

“It has also been frequently observed by visitors how remarkably sudden and uncomfortable a change of temperature is produced by the passage of a cloud before the sun's disk. It was no uncommon circumstance for a fall of 70° to 10° to be produced in about as many minutes.

“The pretended mildness of the nights has been a point on which much stress has been laid, constituting, as one circular remarks, ‘the secret of the climate. In other climates, the night is almost invariably, and is always liable to be, colder and damper than the day. In St. Augustine, the reverse is the case, and thus the delicate lungs of a patient are secure from one of the greatest sources of irritation.’ I can state that during the whole of my residence there, this was by no means the fact, nor do I believe, from the inquiries I made, that it ever is during the winter season. From the nature of my duties I had opportunity to notice the weather during almost every night, and can therefore speak with positiveness on this subject. During a portion of the summer months, it may be the case that the nights are not cooler than the days, and I am inclined to believe that the cooling effect of the daily trade winds, during what would otherwise be the intolerably hot season, has not been much exaggerated. This advantage however, is of very little moment to pulmonary invalids, very few of whom could be induced by any consideration to think of spending the year there, when the season of summer and early autumn offers no objection to a residence in the northern or middle states.

“No barometrical or hygrometrical observations have ever been registered at this place. I am persuaded that when they shall be, the boasted dryness of the atmosphere will be found to rest on no better evidence than its freedom from atmospherical vicissitudes.

“I did not commence keeping a register with regularity till some time after my arrival; not indeed, till I was convinced how erroneously and unfairly the former observations had been made. During this period, I would remark that a cold N. E. storm prevailed for about a week, followed by a warm, foggy atmosphere, in which the thermometer was as high as 74° several times, and a few days subsequently as low as 36° —white frost was also noticed.

“The thermometer, a register of which follows, was suspended at a northerly exposure, and in shade throughout the day.”

Register of the Thermometer.

	Date.	at 7.	at 2.	at 7.	Winds and remarks.
Jan.	16	38	46	48	Cold west wind.
	17	26	40	32	N. W.
	18	21	45	38	At 3 o'clock, A. M. 25°—At 6 A. M. 22°.
	19	34	53	42	At 6 A. M. 28°—At 10 A. M. in the sun, 93°!
	20	33	62	48	White frost.
	21	42	64	59	Cloudy. Wind S. W.
	22	56	52	50	Rain in the night.
	23	32	57	46	E.—Cloudy.
	24	43	68	52	N. W. Do. [shade, 56°!
	25	42	64	49	At 10½ A. M. in the sun, 102°, same time in the
	26	36	68	54	S. E.
	27	44	76	57	Flying clouds.
	28	47	74	61	S.—Cloudy after M.
	29	63	73	67	Tremendous gale last night—showers A. M.
	30	54	63	56	Cold easterly storm.
	31	65	73	54	S. thick, with showers.
Feb.	1	48	69	58	Heavy fog A. M.
	2	50	76	59	E. [P. M. wind W.
	3	65	80	74	Violent E. wind through the night—thick clouds.
	4	43	50	41	Rain last night. In sun, at 1 P. M. therm. 90°.
	5	38	45	44	At 3 P. M. commenced <i>snow</i> and hail. Wind N.
	6	54	55	54	Thick cloudy. [therm. at 43°, cont'd 10 m.
	7	40	46	45	Do. do.
	8	42	56	46	Do. with rain.
	9	43	58	48	Do.
	10	39	51	44	
	11	41	69	48	[the sun, obscurely seen.
	12	46	51	43	Thick flying clouds. Wind E. Great eclipse of
	13	53	64	50	Wind N. E.; flying clouds.
	14	52	76	58	S.—cloudy, hazy.
	15	60	67	60	E.—cloudy, rain.
	16	63	72	63	E.—do. do. with heavy thunder.
	17	53	69	49	W.—clear at morning; P. M. cloudy and rain.
	18	48	63	48	N.
	19	54	62	56	N.—cloudy in part.
	20	53	70	54	N. E. flying clouds.
	21	61	77	60	Cloudy P. M.
	22	62	76	68	Cloudy, with a remarkably dense fog.
	23	56	70	59	N. In the sun at 1 P. M. therm. at 94°.
	24	46	71	55	N. W.
	25	54	70	58	N. W.
	26	53	71	58	N. W. and round to E.
	27	54	75	62	S. E.
	28	60	72	59	Heavy rains A. M., clear at 1 P. M.
March,	1	58	64	54	E.—cloudy.
	2	56	70	62	S. W.
	3	57			N. E.

“Were the question asked me, if I saw or heard of any well-authenticated instance of consumptive disease cured, relieved or protracted by any ‘curative effect,’ of this climate, truth would compel me to say I saw or heard of none, nor have I a doubt that many individuals, who were seduced there by misrepresentations, did not actually live as long as they would have done at the north;—the fatigues, exposure, want of medication, nursing, proper diet, &c. during an inclement winter passage on a dangerous and harbourless coast, added to the

severe disappointment of finding none of their expectations fulfilled as to the place itself, undoubtedly accelerated the inevitable fate of the consumptive.

“To the individual labouring under well-marked consumption, using the term in its widest sense as characterizing the various forms of chronic pulmonary disease, the best advice I could offer as to change of climate would be the oriental benediction, ‘May you die at home!’ To those in the incipient stage, or strongly threatened, I would urge my conviction, that a well-regulated artificial temperature, and judicious medical and dietetic treatment, (and I may here, I hope without invidiousness, express my belief that pulmonary diseases are no where so well treated as in New England,) offer far greater hopes of relief than sea-voyaging or change of climate.

“The use of the *stethoscope*, for a want of an acquaintance with which, no apology can now be offered by the practitioner, certainly has thrown so much light upon, at least, the hopeless forms of consumptive disease, that no patient need be sent off in ignorance of his incurable state, to endure the miseries, privations, and disappointments of another climate.”

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Experiments on Nicotiana Tabacum and Nicotine. By JOSEPH C. TURNPENNY.
—In order to illustrate the properties of tobacco, and its proximate principle, nicotine, I have carefully performed the following experiments.

“*Experiment 1.* To half a pound of green tobacco, freshly gathered from the plants, eight ounces of pure water were added, in which it was digested three days; after which it was subjected to filtration and pressure. To the liquor thus obtained, about half a drachm of recently calcined magnesia was added, in order to discharge the nicotine from its natural combination in the plant.

“This infusion was then boiled a few minutes after the addition of the magnesia; when cold the clear liquor was decanted. While hot, the smell of tobacco was much more decided than a decoction of the same would have been without the addition of magnesia. The decanted liquor was introduced into a retort and submitted to distillation by the aid of an oil bath, temperature about 300° Fahrenheit; the nicotine passed over with the water, giving to it a slight amber colour. It commenced passing at the temperature of 260°, and its passage was very rapid at 325°. In operating on green tobacco, the process is much retarded by the presence of substances giving to the infusion a disposition to froth, and to throw itself into the neck of the retort. The amber-coloured liquor was strongly characterized by the odour of the purest kind of tobacco, and when agitated with sulphuric ether, (62° Baumé,) after decantation and evaporation, yielded a few grains of a slight yellow extract about the consistence of molasses, having a powerful odour of tobacco, sufficiently strong to excite, with energy, the nasal organ. The substance above described restores the blue colour of litmus paper reddened by an acid, and turns curcuma paper to a red; it forms combinations with acids in which its odour is restrained. It is unquestionably nicotine, slightly coloured by volatile colouring matter present in the plant.

“*Experiment 2.* Half a pound of green tobacco was subjected to digestion in eight ounces of water, acidulated with half a drachm of sulphuric acid. After three days, this was subjected to filtration and pressure, and the liquor treated with sufficient calcined magnesia to neutralize the acid. It was then submitted to distillation by the aid of an oil bath, the process being in all respects similar to the one already detailed in experiment No. 1; the result corresponding precisely with the former experiment.

“*Experiment 3.* Half a pound of dry leaves of Kentucky tobacco was digested four days in pure water, at the temperature of 70° Fahrenheit, after which it was strained, and the residue strongly pressed; a highly-coloured liquor charged with tobacco was obtained, of specific gravity 1048.04; to which, when raised to the temperature of about 180° Fahrenheit, one drachm of calcined magnesia was added, and the whole was agitated. After standing at rest, it was carefully decanted, and the clear liquor submitted to distillation by the aid of an oil bath, at the temperature of 309° Fahrenheit. The distillation was

effected with comparative facility, and resulted in the production of a fluid, amber-coloured, and highly impregnated with the odour of tobacco. The residue, after distillation, which was suffered to cool in the retort, was of the consistence of molasses, and presented on the sides of the vessel a few granular crystals, formed either by the usual salts contained in tobacco, or some new compound occasioned by the introduction of magnesia.

“The amber-coloured liquor, when treated with sulphuric ether of 62° Baumé, afforded by evaporation a substance of the consistence of honey, very slightly coloured, and powerfully impregnated with the odour of tobacco; this, when evaporated nearly to dryness, yielded a granular mass.

“*Experiment 4.* The dried leaves of Kentucky tobacco, in quantity the same as in experiment 3, were submitted to water acidulated with sulphuric acid; after digesting four days, at the temperature of 70° Fahrenheit, the liquor was separated, and more than sufficient calcined magnesia added to neutralize the sulphuric acid. The clear liquor was submitted to distillation by the means of an oil bath, as in the last experiment, and the amber-coloured liquor was obtained, affording by the use of ether, the same product as there detailed.

“*Experiment 5.* The aromatic substance obtained by ether from the distilled amber-coloured liquors was combined with diluted sulphuric, hydrochloric, tartaric, oxalic and acetic acids; in each of the saline compounds, the aromatic odour was decidedly controlled by the acid, and almost suppressed in the sulphate, oxalate, and tartrate. When evaporated nearly to dryness, in several of the salts granular formations occurred, but no well-defined crystals.

“*Experiment 6.* The concentrated infusion of tobacco, as directed by the Edinburgh Dispensatory, was submitted to distillation by means of an oil bath, a liquor was obtained of a light amber colour, charged with the peculiar aroma of tobacco; (not so decidedly as that obtained after the introduction of calcined magnesia into the infusion, in a previous experiment,) this liquor changed curcuma paper to a light brown, which a diluted acid restored to its original colour. Litmus paper, reddened by an acid, was also restored by this liquor to its original colour. Tincture of nut-galls produced a copious light-yellow precipitate.

“This liquor, after remaining forty-two days, had not in the least changed its appearance. It is difficult to account for the substance said to have been produced by Hambstadt in the experiments alluded to by the Edinburgh Dispensatory; particularly as the nicotine is very soluble in water, and does not crystallize.

“*Experiment 7.* The products from the infusions of tobacco were submitted to distillation after having been nearly exhausted by sulphuric ether, of 62° Baumé, were saturated with dilute sulphuric acid, and then evaporated at the temperature of 212° Fahrenheit; a thick coloured extract was the result with traces of crystalline forms—this extract, when perfectly dry, was submitted to anhydrous alcohol, (about 40° Baumé,) from which the sulphate of nicotine was obtained in solution, and a small portion of sulphate of ammonia, in distinct crystals, were left undissolved. The ammonia resulted from the reaction of the magnesia on a salt of ammonia contained in the infusion of tobacco, and its combination with sulphuric acid from the addition of the latter previous to the evaporation above alluded to.

“The following experiments illustrate the physiological character of nicotine, and although foreign to the science of pharmacy, I consider of sufficient interest to be recorded.

“*Experiment 8.* About one-sixteenth of a grain of hydrochlorate of nicotine was given to a healthy mouse. The symptoms which immediately ensued were violent spasms of the limbs and body, laborious breathing, great prostration, nausea, inclination to sleep, pupils largely dilated, weakness in the extremities, especially the posterior, and in the course of a few hours the animal died.

“*Experiment 9.* To a healthy mouse, a minute portion of the oxalate of nicotine was given on the point of a large needle; a narcotic effect was immediately produced—laborious breathing and vomiting. In the course of half an hour the animal recovered.

“*Experiment 10.* To a half grown healthy cat, about one-eighth of a grain of

the hydrochlorate of nicotine, dissolved in water, was given. An almost instantaneous evidence of the influence of a powerful narcotic was manifested, followed by prostration, with nausea and vomiting—first, the contents of the stomach, then frothy mucus, with violent retching. The head was inclined downwards, and the pupils dilated. The animal having vomited five or six times, gradually recovered, and appeared perfectly well thirty minutes after the exhibition of the nicotine.

“*Experiment 11.* To the same cat about half a grain of the hydrochlorate of nicotine was given, dissolved in water; all the symptoms of a narcotic character evinced as before, were now manifested in the most aggravated form; the ears were drawn closely down upon the back of the head, she made one or two efforts to walk, when she fell, in a state of the greatest prostration, with slight convulsions of the posterior extremities; evacuation of the contents of the rectum, the ears recovering their natural position, but not their sensibility to the touch; the posterior extremities seemed no longer to be under her controul; being thrown in an opposite direction to that of the anterior, thereby giving a spiral twist to the back; pupils fully dilated; squinting of the eyes, turned upwards and outwards; alternately laborious, hurried breathing, with rattling in the lungs and deep inspirations. In this apparently dying state, she laid about thirty minutes, after which she gradually recovered, making violent efforts to vomit, ejecting small quantities of frothy mucus. In the space of sixty minutes she had command of her extremities, but still manifested inclination to coma, with want of appetite. In about three hours, she had entirely recovered, with the exception of great weakness, and took food with avidity.”—*Journal of the Phil. College of Pharmacy, Oct. 1833.*

Cholera.—It has been doubted by some physicians that cholera ever appeared in the open country, and in sequestered farm houses; the following statement by the able editor of the *Western Journal of the Medical and Physical Sciences* is conclusive on this point, and furnishes moreover other information relative to the disease of considerable interest. The proofs which Dr. Drake alludes to, as adduced in favour of the contagiousness of cholera, appear to us to have even less force than he attaches to them.

“For several weeks the northern parts of Kentucky have been ravaged by the Epidemic. It *seems* to have extended from the river, at Maysville, into the interior, and yet it appeared at Lexington and Georgetown, *before* it broke out in Paris and Millersburgh, towns which lie on the great road leading to the ancient metropolis of the state. It is, however, by no means confined to the villages, but invades the most sequestered farm houses, where, in many instances, it has been more fatal, than in the towns. Among other spots it has put forth its power at the Blue Licks and Harrodsburg, old and salubrious watering places; at which not a few were assembled, under the delusive impression, that it would not visit such spots. So far from being safe situations, however, we have understood that the salino-sulphur waters of the Blue Licks, which operate as a cathartic, were found in several cases to be an exciting cause.

“In all the towns and villages of the region where it prevails, a flight has been the consequence of its first appearance. The idea of contagion seems to have been uppermost in the public mind; and escape, regarded as the only preventive. Even the medical mind of that district of country, has been mystified by the same phantom; and in several places, the physicians have not only recommended flight to the inhabitants, but have actually flown themselves; leaving those who could not escape, to grapple with the danger as they might! It is with pain we record such circumstances; but they make a part of the history of the Epidemic, and throw much light on the causes of its great mortality, in a tract of country, where from the dryness of the calcarious soil, the abundance of subsistence, the comfortable style of living, the orderly habits, and the general intelligence of the people, a mitigated visitation might have been reasonably anticipated.

“Last summer the same portion of the state was visited by the Epidemic, in

the form of a mild diarrhœa, and in autumn a number of deaths occurred in Maysville, Lexington, and other towns; but it was decidedly fatal in Frankfort only; which, it is worthy of remark, remains almost unaffected the present summer, although most of the surrounding villages and farms are sorely afflicted. The same is true, in nearly an equal degree, of Louisville, which suffered much more, last autumn, than during the present spring and summer.

“We have said, that the epidemic seemed to *advance into* Kentucky from the Ohio river; from the same, it has appeared to advance into the state of Ohio. Many of the towns and villages on both banks of the river have been invaded, and are now suffering, quite up to Pittsburg, which, although defended by a quarantine battery, eight or ten miles below the city, has had a number of cases. At Wheeling, not less than in Maysville, it was more severe and fatal. At Bridgeport, opposite the former, it proved suddenly and dreadfully mortal, though on the first day, almost all the inhabitants fled. Steubenville, Gallipolis, and other smaller towns, as New Richmond, twenty miles above Cincinnati, are now suffering more or less. In the rear of all these places, indeed, in the southern portions of the state of Ohio, generally, as in the northern parts of Kentucky, it is daily manifesting itself in some new locality. Thus it seems, like the exhalations of the river, to spread from its valley over the adjoining parts of these two states, and equally, as we understand, over Indiana and Illinois. Indeed the region of country through which the river runs, is that, where, in the west, the disease is now most prevalent; its banks were the first affected, its bed *seems* to be the *nidus* of the pestilence. Thus the spread of cholera in this country, affords, as it has afforded in all others, much *prima facie* evidence of contagion—evidence which the credulous think conclusive, and the most philosophical find perplexing.

“To this seeming proof of contagious dissemination, we may oppose the unquestionable facts,—that diarrhœa or cholera is generally prevalent throughout the same region; that fatal cholera has occurred, nearly at the same time, in places remote from each other; that the epidemic distemperature appeared along the great rivers, on nearly the same days, from the Gulf of Mexico to the mountains; that some villages, at which steam boats have constantly landed, have not yet been attacked; that villages comparatively near to, and in constant intercourse with, towns where the disease prevailed, still remain unaffected, while others more remote are laid waste; as for example, Mayslick, twelve miles from Maysville, on the Lexington road, which remains untouched, while Flemingsburg, eight miles further off, and remote from the great highway, has already suffered to a degree seldom equalled any where; finally, that the experience of every day augments the number of cases, which could not have been contracted by exposure to others labouring under the malady.

“Now, if *any* case of cholera arise, independently of contagion, *every* case may, and from the moment when it is shown, that the disease can be produced without contagion, it is sound medical logic to conclude that no such principle exists. This conclusion, however, must not be regarded as definitive and final, unless it is shown, that a disease, which sometimes originates from some other cause than contagion, can never originate from that cause. Still, it is incumbent on the contagionist to make out every case by special proofs; but in attempting this, they must necessarily labour under this disadvantage—that as the atmosphere is impregnated with a poison which sometimes, at least, produces the disease, it is impossible, in the case in which it follows exposure to a choleric chamber atmosphere, to know whether the disease really arose from that cause. The individual might have been attacked from the other cause if he had not been subject to contact with the sick. In the case of one individual, only, this presumption might always be made; but what shall we say of those well-authenticated instances in which several members of a family, and sometimes the visitors, are successively taken down, in places where the disease is not prevailing? There are examples of this kind which, we must acknowledge, are embarrassing to the non-contagionists; but they do not *establish* the existence of contagion—they only render it probable.”

Cephalic Bellows-Sound.—The September No. of our cotemporary, the *Medical Magazine*, contains some highly interesting observations by Dr. JOHN FISHER of Boston, on a bellows-sound observed in the head. This sound was first discovered by him in July, 1832, in a child two and a half years of age, affected with chronic hydrocephalus. On applying his ear to this child's head, to his surprise he heard a very loud and distinct bellows-sound, resembling that caused by certain diseases of the heart. Dr. Fisher has since met with it in five other cases of cerebral affections, in all of which the sound was very distinct. Whether it be present in all diseases of the brain, Dr. Fisher has not yet ascertained. "Having heard the sound," he remarks, "a second time, the idea occurred to me that it might be a normal one, and the unceasing result of health. To determine this point I immediately began to examine the heads of healthy persons of all ages, and from many careful and repeated observations I find that in children, previous to the commencement of dentition, auscultation discovers no sound in the head resembling the bellows-sound. The sound produced by the impinging of the air during respiration, against the walls of the nasal cavities; those produced by the act of swallowing and of speaking, and by the heart's motions, can be easily heard and distinguished from each other. In children during the process of dentition I have, besides the sounds just mentioned, frequently detected a cephalic bellows-sound. The sound was not present in all teething children, but in those only who suffered much from the process of dentition. And in these, the cephalic bellows-sound differed somewhat from that which was heard in the patients who died of dropsy in the brain, in being more abrupt, shorter and less diffused. It might have been denominated the bruit de rape rather than bruit de soufflet, as it resembled more strikingly the action of a file than of a bellows. And in no instance have I noticed it to pass into a continuous murmur or to assume a musical tone. It maintained one uniform character.

"It was in the early period of the first dentition and previously to the closure of the anterior fontanelle, that the sound was most frequently and distinctly heard. In one instance only have I heard it, after the development of the first twenty teeth; and in this one instance the boy was cutting the remaining double teeth. Neither in healthy adults or aged persons have I been able to detect the sound, although I have repeatedly and with great attention auscultated the heads of such subjects to ascertain if it did exist in them. I have not as yet discovered that the cephalic bellows-sound accompanies any malady, other than those which mediate or immediately affect the brain. In a case of severe peripneumony, however, I recollect that the sound existed. It was loud and well-marked, and was heard by Dr. James Jackson, who saw the child with me; but the little patient was cutting its teeth and had suffered much from the process. In two cases of hooping cough I noticed the sound very distinctly, when I applied my ear upon the patient's head at the instant the paroxysm of coughing ceased. The sound continued but for a moment, and only while the face continued to be flushed by the accumulation of blood in and about the head. I have seated myself for a long time by the child, and waited patiently for the return of the fit of coughing that I might, by repeated observations, satisfy myself of the truth of the fact above stated. In every instance of severe coughing the sound was produced, but it disappeared as soon as the child began to breathe freely, and the circulation became again unobstructed and natural. Such are the facts which I have collected in relation to this new phenomenon."

Dr. Fisher thinks, that it is clearly proved from the observations made in the six cases in which he has observed the cephalic bellows-sound, that this sound originates in the arteries. "For in the first place," he observes, "the sound was distinct from that produced by respiration, by deglutition, muscular action, or any other operation going on within the head, that we can conceive of, save arterial action. Secondly, it was synchronous with the pulsations and impulse of the heart, and of the carotid and temporal arteries, and also with the rising and impulse of the brain as observed by placing the finger upon the unclosed fontanelle. Thirdly, the sound ceased to be heard, or at any rate was rendered

less distinct, by compressing the carotid arteries and arresting the circulation in them, and it became less audible as the patient grew weak and the pulse feeble. Fourthly, it resembled in all respects the bruit de soufflet which we hear in diseases of the heart and of the arteries, and particularly in aneurism of the latter vessels. Fifthly, in looking at the structure and composition of the organs contained within the cranium, we must be convinced that the arteries were the only organs which could have sent forth a bellows-sound like those I have noticed. Assuming it as proved that the sound proceeded from the arteries, I may further observe that those situated at the base of the brain, were probably the ones in which it originated. I infer this from a consideration of the distribution of the arteries within the head. Anatomy teaches us that all those of any considerable size are situated at the base of the brain, and rest upon unyielding bony structure. Having passed through their appropriate apertures and osseous canals, they course along upon the base of the skull and in furrows formed for them in the brain, and soon subdivide and spread themselves upon the pia mater, and do not actually enter the substance of the brain until they become mere capillary vessels. There is, therefore, no artery existing in the cerebral substance, and no one running over its surface, of sufficient caliber to send forth a bellows-sound as distinct and audible as were those I have heard. For to produce a bellows-sound in an artery artificially, I find that the artery must be of considerable size, and must rest upon rather an unyielding surface, otherwise it will not be placed in a condition necessary for the production of the sound. A further proof that the arteries at the base of the brain were the seat of the phenomenon, is derived from the motions of the brain as seen and felt at the fontanelle. These are evidently caused by the pulsations of the arteries on which the organ rests. The bellows-sound always accompanies and is synchronous with the elevation of the cerebral mass; and as there is no other cause to account for this, it follows that the sound must have arisen from these vessels. The facility with which it was heard at the summit of the cranium is no argument against this conclusion. For the brain is an excellent conductor of sound, as is proved by the fact that it readily transmits the noise produced by the action of a watch. If then the bellows-sound proceeded from the arteries at the base of the brain, its production in the cases I have mentioned may be readily accounted for. It is now a well-established fact, that the bellows-sound of the heart and of the arteries arises from an impediment to the flow of the blood through these organs. The cephalic bellows-sound which I have described, unquestionably arose from such a cause. In all the cases in which it was present, there was either dropsy of the brain, or a congestion of the blood-vessels within it; and the brain being incompressible and acted upon by these causes, was forced against the arteries at its base, and must have contracted them at certain points. This condition of the arteries obstructed in a degree the passage of the blood through them, and was the immediate cause of the cephalic bellows-sound. If this be the true explanation of the existence of the sound, we may expect its presence in all diseases which may in any considerable degree compress the brain, and we may perhaps venture to hope that a physical sign has been discovered, which will prove to be a pathognomonic symptom of cerebral disease."

BOURGIER's *Petite Chirurgie*.—We are happy to announce that a translation by Drs. W. C. ROBERTS and J. B. KISSAM of this excellent work, is now in the press. Its publication may be expected in the course of the ensuing month.

Baltimore Medical and Surgical Journal and Review.—Just as this form was preparing for press, we received the first No. of this work, of course too late to do more than just glance at its contents. From the known talents and indefatigable industry of its editor, E. GEDDINGS, M. D., however, no doubt can be entertained of the value of its contents, and of the ability with which it will be conducted. We shall have the pleasure of introducing it more particularly to our readers in our next.

TO READERS AND CORRESPONDENTS.

Communications have been received from Professor HORNER, Dr. JACKSON, Dr. TICKNOR, Dr. HULL, and Dr. DUDLEY.

Several articles prepared for this No. have been omitted for want of space, though we have extended the No. twelve pages beyond our limits.

The following works have been received:—

The Dispensatory of the United States of America. By GEORGE B. WOOD, M. D. &c. and FRANKLIN BACHE, M. D. &c. Second edition, enlarged and carefully revised. Philadelphia, 1834, Gregg & Elliot. (From the publishers.)

Illustrations of Pulmonary Consumption; its Anatomical Characters, Causes, Symptoms and Treatment. With twelve plates, drawn and coloured from nature. By SAMUEL GEORGE MORTON, M. D. Physician to the Philadelphia Almshouse Hospital; Lecturer on Anatomy, &c. &c. &c. Philadelphia, 1834. (From the author.)

Experiments and Observations on the Gastric juice, and the Physiology of Digestion. By WILLIAM BEAUMONT, M. D. Surgeon United States' Army. Plattsburgh, 1833. (From the author.)

Medico-Chirurgical Transactions, Published by the Medical and Chirurgical Society of London. Vol. XVIII. London, 1833. (From the society.)

Recueil de Mémoires sur le Typhus Nautique, ou Fièvre Jaune, Provenant principalement de l'Infection des Batimens Négriers. Par M. AUDOUARD, D. M. M. Envoyé à Barcelone en 1821, et au Port du Passage en 1823, par S. E. le Ministre de la Guerre, à l'occasion de la Fièvre Jaune, &c. Paris, 1825-26. (From the author.)

An Essay to prove the Contagious Character of Malignant Cholera; with Brief Instructions for its Prevention and Cure. By BERNARD M. BYRNE, M. D. Baltimore, 1833. Carey, Hart & Co. (From the publishers.)

The Infirmities of Genius, illustrated by referring the Anomalies in the Literary Character to the Habits and Constitutional Peculiarities of Men of Genius. By R. R. MADDEN, M. D. 2 vols. Carey, Lea & Blanchard, 1833. (From the publishers.)

Catalogue of the Trustees, Faculty, and Students of the Berkshire Medical Institution, and of the Alumni and Honorary Graduates, since its incorporation in 1823. Pittsfield, Mass. 1833. (From Professor H. H. Childs, M. D.)

A Treatise on the Venereal Disease and its Varieties. By WILLIAM WALLACE, M. R. I. A. &c. London, 1833. (From the author.)

The Hand, its Mechanism and Vital Endowments as Evincing Design. By Sir CHARLES BELL, K. G. H. F. R. S. L. & E. Philadelphia, Carey, Lea & Blanchard, 1833. (From the publishers.)

Introductory Lecture, delivered on the 11th of November, 1833. By SAMUEL HENRY DICKSON, M. D. Professor of the Institutes and Practice of Medicine in

the Medical College of South Carolina. Published by the students. Charleston, 1833. (From the author.)

An Introductory Lecture delivered to the Medical Class of the University of Maryland, on Friday, October 31st, 1833. By ROBLEY DUNGLISON, M. D. Professor of Materia Medica, Therapeutics, Hygiene, and Medical Jurisprudence in the University of Maryland. Published by the Medical Class. Baltimore, 1833. (From the author.)

Lettre de M. Souberbielle, a l'Academie des Sciences, sur la Statistique des Affections Calculeuses, présenté par M. CIVIALE, dans la seance du 26 Aout, 1833. (From the author.)

A Treatise on Lesser Surgery, or the Minor Operations. By BOURGERY, D. M. P. Translated from the French, with Notes and an Appendix. By WILLIAM C. ROBERTS and JAMES B. KISSAM. New York, 1834. (From the translators.)

An Address Introductory to a Course of Lectures delivered in the Hall of the Medical College of South Carolina, before the Trustees and Faculty, the Students of Medicine, and the Public generally, at the opening of the Session of 1833-4. By GUNNING S. BEDFORD, M. D. Professor of Obstetric Medicine and the Diseases of Women and Children. Published at the request of the Trustees and the Students of Medicine. Charleston, 1833. (From the author.)

A Catalogue of the Officers and Students of Dartmouth College. October, 1833. (From Professor Mussey.)

A Catalogue of the Officers and Students of Transylvania University. Lexington, Kentucky. January, 1834. (From Professor C. W. Short.)

The Dissector's Guide, or Student's Companion. Illustrated by numerous wood cuts, clearly exhibiting and explaining the dissection of every part of the human body. By EDWARD W. TUSON, F. L. S. &c. Lecturer on Anatomy and Physiology at the Little-Windmill-street school. First American edition, with additions. By WINSLOW LEWIS, Jr. M. D. Demonstrator of Anatomy to the Medical School of Harvard University. Allen and Ticknor, Boston, 1833. (From the publishers.)

Annales de la Médecine Physiologique. November, December, 1832, January, February, March, April, May, 1833. (In exchange.)

Archives Générales de Médecine; Journal Complementary des Sciences Médicales. January to August, 1833. (In exchange.)

Transactions Médicales; Journal de Médecine Pratique. January to August, 1833. (In exchange.)

Journal Universel et Hebdomadaire de Médecine et de Chirurgie Pratiques et des Institutions Médicales. March to September, 1833. (In exchange.)

Journal de Chimie Médicale de Pharmacie et de Toxicologie. January to September, 1833. (In exchange.)

Journal de Pharmacie et des Sciences accessoires. January to September, 1833. (In exchange.)

Revue Médicale Française et Etrangère, Journal de Clinique de l'Hotel-Dieu,

de la Charité et des grands Hôpitaux de Paris. January to August, 1833. (In exchange.)

Journal des Connaissances Médico-Chirurgicales, September, 1833. (In exchange.)

Gazette Médicale de Paris, January to September, 1833. (In exchange.)

La Lancette Française Gazette des Hopiteaux, civils et militaires. January to October, 1833. (In exchange.)

Heidelberger Klinische Annalen. Nos. 1, 2, 3 and 4, for 1832. (In exchange.)

Litterarische Annalen der Gesammten Heilkunde herausgegeben von Dr. J. F. C. HECKER. For September, October, November, December, 1832, and January, 1833. (In exchange.)

The London Medical and Surgical Journal, for July, August, September and October, 1833. (In exchange.)

London Medical Gazette, for August, September, October, and November. (In exchange.)

Glasgow Medical Journal, Vol. I. No. 2, Vols. IV. and V. and Nos. 1, 2, and 3. Vol. I. N. S. (In exchange.)

The Edinburgh Medical and Surgical Journal, for October, 1833. (In exchange.)

The Medico-Chirurgical Review, for October, 1833. (In exchange.)

The Medical Magazine, conducted by A. L. PEIRSON, J. B. FLINT, and E. BARTLETT. For October and November, 1833. (In exchange.)

The Boston Medical and Surgical Journal, Vol. IX. Nos. 11 to 22, inclusive. (In exchange.)

The Western Journal of the Medical and Physical Sciences, for October, 1833. (In exchange.)

The Baltimore Medical and Surgical Journal and Review, for January, 1834. (In exchange.)

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "CAREY, LEA & BLANCHARD, Philadelphia, for the Editor of the American Journal of the Medical Sciences."

All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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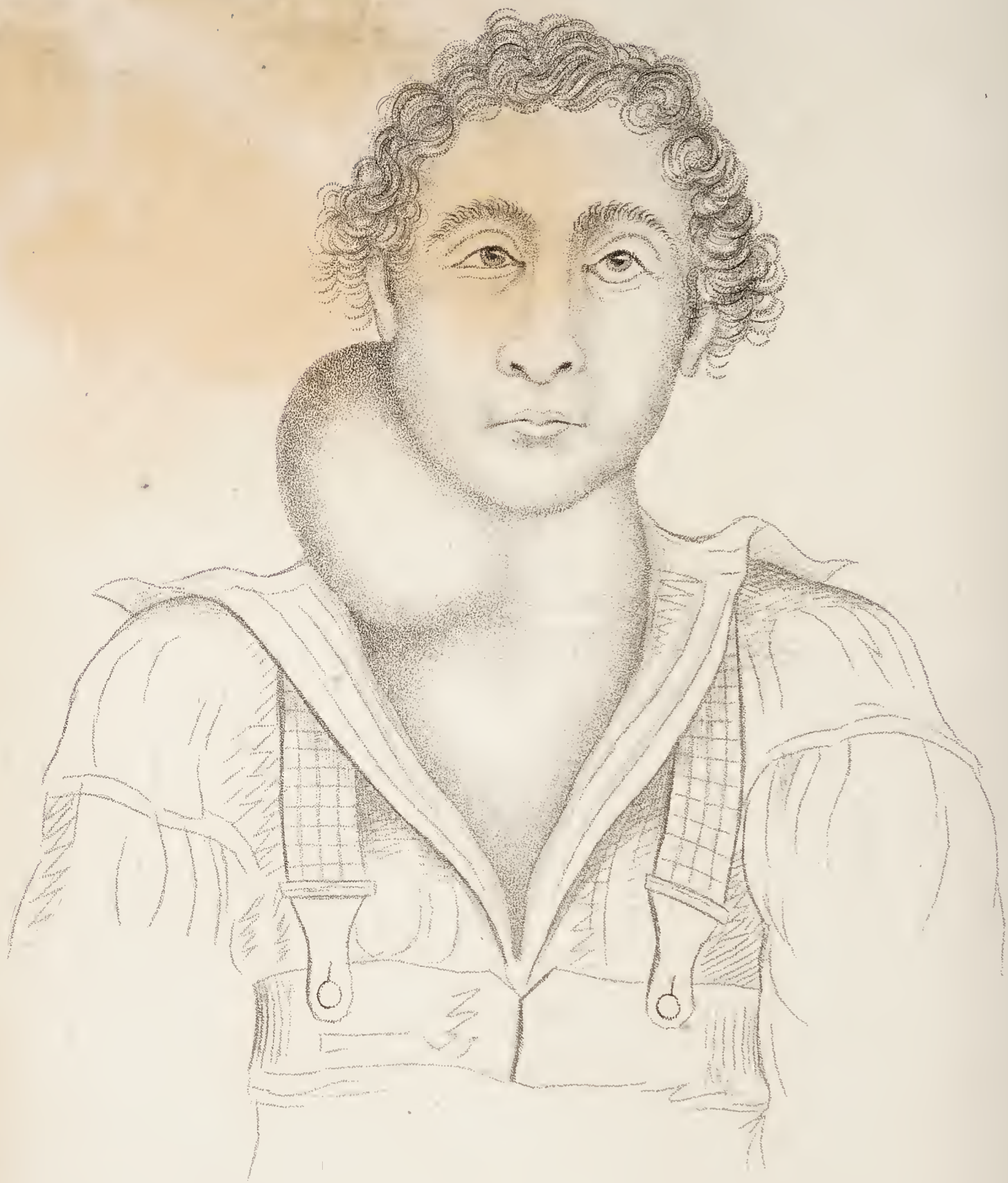
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ERRATA.

Page 305, line 17 from bottom, for “*left*” read “right.”



Gibson's case of Tumour of the Neck.

THE
AMERICAN JOURNAL
OF THE
MEDICAL SCIENCES.

ART. I. *Case of Extirpation of a Tumour of the Neck, in which the Carotid Artery and Internal Jugular Vein were Tied—with Remarks.*
By WILLIAM GIBSON, M. D. Professor of Surgery in the University of Pennsylvania. [With a plate.]

GEORGE WASHINGTON REYNOLDS, seventeen years of age, came to Philadelphia from Delaware in November, 1832, and placed himself under care of Dr. HORNER, on account of a tumour of the size and shape of a cocoa-nut, which occupied the whole of the left side of the neck. Dr. Horner referred him to me, and at the same time requested the opinion of Dr. PHYSICK on the case. The friends of the patient stated that the swelling had made its appearance five years before, that it arose without evident cause, and had gradually increased to its present magnitude. The boy now sought relief, on account of the difficulty of breathing and of deglutition he experienced, and which increased with the growth of the tumour. In other respects he felt no inconvenience from it; his complexion was florid and healthy, and his constitution apparently sound and vigorous. In consultation, it was determined that nothing less than extirpation would afford a chance of recovery, and I was requested to undertake the operation. Previously, however, I thought it adviseable to reduce the patient by blood-letting, low diet, and other antiphlogistic means, both to diminish hæmorrhage, and to guard against inflammation. Having fulfilled these indications, I commenced the operation, (November 20th,) assisted by Drs. HORNER and J. R. BARTON, in the
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theatre of the Alms-house Infirmary, in presence of several hundred students. The patient was placed, at full length, on a narrow table, his head inclined to the right side and supported by a pillow. An incision two inches long was made over the course of the carotid, low in the neck, and that vessel tied by a single ligature. Over the most prominent part of the tumour, commencing immediately under the angle of the lower jaw, and extending nearly seven inches, another incision was made through the integuments; continuing the line thus chalked out, layer after layer of condensed cellular membrane, of fasciæ, and the fibres of the platysma myoides, were successively divided, as well as those of the sterno-mastoideus, which last muscle was spread out by pressure of the tumour, and converted into a thin muscular expansion, intimately incorporated with the platysma, and rendering it difficult to distinguish one from the other. During this stage of the dissection the internal jugular vein was exposed, tied by two ligatures, and divided between them. The ends of the vein were then dissected from the surface of the tumour and turned to one side. In order to get round the tumour, and raise it from the cavity in which it was deeply imbedded, it became necessary to separate the integuments, fasciæ, platysma, and other coverings. This proved very difficult, and was not accomplished without great risk, owing to the distribution of the par vagum and descendens noni nerves, both of which lay on the surface of the tumour, and were closely attached to it. I soon found it was impossible to get out the tumour, and at the same time preserve the descendens noni. I therefore cut it across. Instantly a slight shudder passed over the patient's frame; but the effect was momentary. I determined, however, not to divide the par vagum—dreading the result either immediately or remotely. I was obliged, therefore, to dissect along the edge of the nerve for five inches, and succeeded in detaching it from the tumour to which it had formed a very close adhesion. This was the most painful and difficult part of the operation, and nothing but the uncommon composure and fortitude of the boy, perhaps, enabled me to accomplish my purpose—for he remained during the whole operation motionless, and neither complained, sighed, nor groaned. The par vagum having been thus pushed aside and out of danger, I continued the dissection, taking up occasionally small vessels, sometimes separating with the handle of the knife the adhesions between the tumour and a firm fibrous sac, in which I now found it enclosed, at other times using the edge of the knife until I reached the base of the tumour, which was intimately connected with the pharynx and œsophagus, and to remove it from which required every possible precaution. In this,

also, I at last succeeded, though not without the division of four or five vessels, which at first shed blood freely, but were soon tied, or shrunk of their own accord. The action of the pharynx and œsophagus was distinctly seen, even at a distance, whenever the boy imitated the action of swallowing, or took fluid by the mouth. The cavity left by the tumour was even larger than had been anticipated, owing to the influence of pressure upon all the surrounding parts. To guard against return of hæmorrhage, the patient was left on the table for twenty minutes, and the edges of the wound held together temporarily. No hæmorrhage occurring, the wound was dressed regularly by adhesive straps, &c. and the patient put to bed. The operation lasted thirty-four minutes.

The tumour having been cut open and examined in presence of the class, was found to consist of a medullary-like matter, of rather firmer texture, however, than that usually met with in fungus hæmatodes. The idea was at once impressed upon my mind, and for the first time, that such indeed was the nature of the disease. The unusually healthy appearance of the boy, and in particular his florid complexion, (circumstances so uncommon in fungus hæmatodes, which is almost invariably accompanied by a sallow, cadaverous countenance,) had prevented any of us from entertaining suspicion of the kind. There was not, moreover, the elastic feel, and deceptive sensation of fluctuation, so characteristic of fungus hæmatodes.

22d. Slight cough and fever; tongue furred.

23d. Pulse and cough increased. Patient kept on barley water.

24th. Slight uneasiness of chest; no increase of fever, and little thirst; tongue very red with white scurf.

25th. Redness over whole abdomen, resembling erysipelas, but no pain; administer enema.

26th. Redness of abdomen diminished after injection.

27th. Redness gone; wound partially united, but suppurating abundantly. Barley water continued.

28th. No fever. Tongue nearly natural.

29th. Wound closed, except where ligatures emerge.

December 1st. Patient complains of being starved; barley water continued notwithstanding.

8th. Diet increased to tea and bread, morning and evening.

11th. Small ligature came away from corner of wound under ear.

22d. Ligatures pulled away from veins.

27th. Ligature from carotid came away.

January 3d.—Wound entirely healed, and patient discharged, apparently in good health.

Some weeks afterwards the boy returned to town, with a tumour half the size of the original one, occupying the same situation. The cicatrix had ulcerated, and there was discharged from the opening a sanious ill-conditioned matter. Fungus, also, was presented at the opening, and seemed to extend within the interior of the swelling. The patient's countenance was pale and ghastly, his skin of a waxy-yellowish hue, and his body emaciated. I saw that nothing more could be attempted for his relief. It was evidently a case of fungus hæmatodes. He was advised to return home, and shortly afterwards died in a dreadful condition.

Remarks.—There are two points connected with the operation just detailed, which give it an interest it might not in other respects, perhaps, be entitled to—the application of a ligature to the internal jugular vein, and the division of important nerves. It is an opinion generally received among surgeons, that large veins cannot be tied without great risk of inflammation of their internal surface speedily following, and proving fatal by extending to the heart. Such certainly has been the result in numerous instances in European practice, but it is equally certain that the occurrence in this country is extremely unusual, for out of a great many instances in which I myself have tied varicose saphenæ veins, and have seen the operation performed by others, I have never met with a single case of injury, much less of death, from such a cause. The only instance, indeed, that has ever come to my knowledge of death from tying the saphena vein, occurred a few years ago in this city in the practice of a respectable surgeon. There were circumstances, moreover, connected with that case, which rendered it very doubtful whether the unfavourable issue was owing to the operation, or to other causes. I think it very probable, therefore, that the constitutions of patients in this country, (owing to all classes of people being well fed and clothed, and little exposed to hardships,) are generally superior to those of Europeans, and as such more capable of resisting the operations of injury or disease. Whether this be true or not, however, it is certain, judging from the details published by European writers, that the patients that have fallen a sacrifice to phlebitis, occasioned by the ligature of veins, have very generally been among the lowest classes, whose constitutions were of the worst kind, and whose operations were performed in the crowded hospitals of large and unwholesome towns. I do not wish to be understood, however, to say that there is no danger from including a large vein in a ligature. On the contrary, I am well persuaded that there is always more or less risk, much greater risk, indeed, than would follow the tying of a large ar-

tery. I only mean to imply that there is less danger in tying a vein than is commonly imagined. Influenced by this opinion I ventured, in the case I have related above, to tie the internal jugular in two places. There are only a few examples on record, I believe, in which this vein has been tied, and most of them had a successful termination. The operation was first performed, there is reason to believe, by Dr. SIMPSON, of St. Andrews, in Scotland, eighty years ago, and the patient recovered without a bad symptom. Mr. SIMMONS, of Manchester, in England, also tied up the internal jugular, and with a similar result. GIRAUD has recorded a case in which a French surgeon, at Toulouse, tied the trunks of the common carotid artery and internal jugular for a wound from a musket-ball. The patient had no unfavourable symptoms as far as the sixth day; but it is not stated whether the man recovered. In this country the internal jugular has been tied by Drs. MOTT and STEVENS, of New York, by the former in 1828, and by the latter in 1830. Both patients recovered. Some interesting remarks on the ligatures of veins, in which cases and experiments have been detailed, have been published by TROUSSEAU, and may be found in the 14th vol. of the "*Archives Générales de Médecine.*" The author is induced to conclude that there is less danger from tying a vein than is commonly imagined, and that the danger is often owing to prematurely pulling the ligatures away, and other mismanagement on the part of the surgeon. Fatal cases of wounds of the jugular veins have been reported, and the death of the patients attributed to the introduction of atmospheric air.

The division of the descendens noni in the case of Reynolds produced little or no inconvenience, it will be seen, to the patient—owing no doubt to this nerve being chiefly destined to supply the muscles of the neck, and holding no important connexion with the vital organs. The dissecting up the par vagum, by which it was more or less disturbed, probably gave rise to the erysipelatous inflammation of the abdomen—this nerve having an intimate relation to the stomach, intestines, &c. A division of it during the operation would probably have produced great disturbance in the animal economy, or have led, remotely, to the patient's death. The only further remark I deem it necessary to make in relation to this case is, that could I have known the tumour to have been of the nature of fungus hæmatodes, I should certainly not have undertaken to remove it—upon the ground, that there is not a single well-attested case on record in which this inveterate malady has been successfully removed by *extirpation*, and very few where the patient has recovered after amputation.

ART. II. *On the Medical Uses of the Viola Ovata.* By STEPHEN W. WILLIAMS, M. D. of Deerfield, Mass.

VIOLA OVATA. Synonym. *Viola primulifolia*, Pursh. Rattlesnake violet. *Specific Description.* It is thus described by NUTTALL.



Leaves ovate, subcordate, crenate, rather acute, often lacerately toothed at the base; equally and for the most part conspicuously pubescent on either side, petiole marginated; scape shorter than the leaves; segments of the calyx subciliate; petals obovate, the two lateral ones bearded. On dry land. Flowers bright blue; flowers in April and May. (North American genera.) I have ventured to give it the English name of rattlesnake violet, from the

fact that it is generally known here by the name of the rattlesnake plantain, from its efficacy in curing the bite of that reptile.

Medical use.—The fact which I shall relate with regard to its efficacy in arresting the direful effects of the bite of the deadly rattlesnake may be implicitly relied on. Dr. WELLS, when living, was considered one of the most eminent, judicious, and observing physicians which Massachusetts has ever claimed. His medical precepts and opinions are treasured up by many of his successors with religious veneration.

Let it not be objected to the *Viola ovata* that we are not acquainted with the active principle of the plant which thus rapidly arrests the progress of one of the most terrible accidents to which humanity is liable. The principal substance which can be extracted from it is mucilage, and this is best done by infusion in water. It yields a greater proportion of it than any of the violets, and nearly as much as the same quantity of slippery-elm, (*Ulmus fulva*;) hence it is much in use in dysentery, diarrhoea, strangury, and other affections of the urinary organs. Other medicinal qualities may reside in the plant,

but I have not discovered them. I cannot persuade myself that its specific qualities reside in the mucilage, for other substances yield mucilage in greater abundance, and are not considered alexipharmic. We ought always to be governed by *facts* rather than speculative opinions. Who can explain the reason why variola vaccina protects the system against the ravages of small-pox? and yet who can doubt the fact? If we can establish the prophylactic qualities of the rattlesnake violet upon as firm grounds, or if we can be instrumental in saving the life of a fellow being labouring under the effects of the bite of this venomous reptile, our object will be accomplished.

Many years ago rattlesnakes abounded in the vicinity of this place. Since the land is cleared they are rarely to be seen. Our old people were in the habit of using this violet for their bites. They generally know it by the name I have designated. The venerable Henry Wells, M. D. late of Montague, successfully employed it in these cases. To his statement respecting it I wish to draw the attention of physicians. He was called to a patient who was bitten by a rattlesnake, and who was labouring under all the symptoms of a diffusion of the venom. His body was enormously swoln, respiration laborious, and his skin livid. He immediately directed a strong infusion of the rattlesnake violet, and constantly bathed the wound and body with it. In a few hours the tumefaction subsided, the febrile symptoms abated, and the patient was considered nearly out of danger. He retired to rest, and gave directions with the nurse to give the violet tea often during the night. The patient continued so much better that the nurse became negligent, and omitted the directions, and fell asleep. From this suspension of the remedy the patient relapsed, the febrile symptoms returned, and the body was swoln like a puff-ball. The doctor was called, and again directed the remedy as before mentioned: the symptoms yielded, and from a continuance of the remedy two or three days he completely recovered without the use of any other means. Dr. Wells related the above fact to my father, who was formerly a physician in this town, and at the same time showed him the plant, which my father perfectly recollected when I collected it for preservation in my herbarium.

My grandfather, Dr. Thomas Williams, formerly of this town, was in the constant habit of using a plant for the bite of the rattlesnake, which he called the rattlesnake plantain, and he was uniformly successful in the use of it. His practice as a physician and surgeon was very extensive. I have no doubt that it was the violet now under consideration.

I have within a few days ceased visiting a little patient who says

that a short time before I was called to him he was bitten by a small green snake upon the top of his foot. Not long afterwards he was attacked with pain in his leg, attended with considerable swelling and high fever. I did not see him until he had been labouring under these symptoms some time. When I first saw him I did not apprehend that the fever, tumefaction, &c. proceeded from the bite of the snake, for I was not aware that its bite was venomous. I put him upon the antiphlogistic plan of treatment, and applied the vegeto-mineral water to the inflamed leg. The next day I visited him, and found his symptoms aggravated, and the swelling increasing. I threw aside the mineral water, and directed emollient fomentations with the rattlesnake violet, and a poultice made with bran stirred into the liquor of the infused leaves. The next morning I was highly pleased with the success of the applications. The tumefaction had subsided, and the fever abated. I left him under a confident expectation that he would soon recover. In the course of the afternoon, however, an officious, intermeddling old woman sent word to the parents of the patient that my applications were improper, and that nothing would cure him but a cold application of the leaves of houseleak, (*Sempervivum tectorum*,) which was accordingly applied. The consequence was an universal chill, succeeded by delirium, and an intense burning fever, from which he was not relieved under several days. He was immediately attacked with pain and inflammation in the groin of the other leg, attended with a good deal of swelling. I was immediately sent for, but could not go until the next morning. I directed the violet fomentations and poultices again. In about a fortnight suppuration occurred, and I let out about half a gill of pus upon the tibia, about half way between the knee and instep. The other leg continued swelled three or four weeks longer, when, by the continued application of the violet poultice, it subsided.

I have since used the infusion of this violet, and a fomentation with the leaves of it in an obstinate case of chronic inflammation of the eyes, which had resisted the long-continued use of a great variety of remedies. The patient had used the slippery-elm and various other mucilaginous preparations with no success; in fact, with rather an aggravation of the complaint. Within a fortnight from the time she commenced with the violet infusion no traces of inflammation about the eyes remained. So it appears it must be some other quality in the violet than its mucilaginous properties which must have effected the change. I am determined in future to use it extensively in the phlegmasiæ, both acute and chronic.

Deerfield, Massachusetts, August 1st, 1833.

ART. III. *Cerebral Affections of Children.* By W. W. GERHARD,
M. D. of Philadelphia.

THIS essay upon the cerebral affections of children will be divided into two distinct parts; the first containing the cases I have collected during a year's observation at the Children's Hospital of Paris, and the second consisting in an analysis of my own observations, and of such others as are contained in special treatises, or in the collections of the journals. From these two sources I shall probably derive sufficient materials to elucidate many points relative to the pathology of these diseases, and after separating such facts as seem clearly established by rigorous evidence, I may facilitate inquiries of subsequent observers. The cerebral affections of children are too rare for collecting a large mass of personal observations in a year's study; but their number, although insufficient for the resolution of many important questions is much larger than could have been met with in a long period of private practice, and will aid in the correct appreciation of the facts related by observers. Little other value is attached to these cases than as specimens of disease, and as proofs that criticism is not extended to other writers without previous study of the natural phenomena at the bed-side and in the amphitheatre. This little personal experience will be perhaps partially compensated by the absence of all preconceived notions as to the nature, relative importance of symptoms or frequency of lesions in these cases; many of the observations are incomplete, none of them perfect, but they have all been collected without the desire of confirming any previous opinion, or of reaching other results than such as will be warranted by rigorous deductions. I have avoided examining the works upon these affections, and have even abstained from comparing my own observations with each other, believing that during a series of observations I should pursue the safer course to avoid all risk of forming a premature opinion upon a subject still intricate and obscure. These precautions may appear trivial, but such as are most familiar with the difficulties of observation will readily perceive the danger of theoretical opinions, and understand the utility of extreme caution in avoiding all suggestions which might give a false colouring to a course of observations in actual progress; as soon as the series is complete, the examination of the facts related by others is both appropriate and necessary. Such a method of study seems to me the only means of arriving at truths which subsequent experience will confirm, instead of the vague notions thrown out by one author and rejected by his suc-

cessor as false and untenable. The phenomena of disease are like the facts of the natural sciences subject to laws, pursue a regular march, and tend towards a natural termination by the recovery or death of the individual. The important difference, however, between medicine and the study of the ordinary phenomena of nature, is that we have an infinitely more complicated science, demanding a greater variety of knowledge, requiring the consideration of a multitude of external agents which modify the usual phenomena, and from the nature of the object, a thinking active being, obliging us to confine our means of investigation to a narrow limit. These difficulties render rigorous observation more painful, but more necessary, and show the futility of theories and vague notions in a science which requires a more careful study of facts than any other: a chemist performs his experiments and then states his deductions, but physicians too often form their theory and afterwards search for facts to sustain it. In short, few questions can be resolved without a direct appeal to nature; and it is only from facts well established and carefully analyzed that uncontested truths can be deduced. I have thought it due to the reader to explain the methods of study pursued, and to state my firm conviction that no other means are capable of establishing what is positive in medicine than the simple observation and comparison of facts. A large portion of the medical world is not yet convinced of the practicability of this sort of investigation, and some physicians affect to disdain these painful researches, and imagine that it is the part of an humble order of intellect to be confined to the naked facts instead of indulging in those vast combinations which indicate a superior mind. But as the object principally to be attained in every scientific research is the discovery of truth, and not the gratification of individual vanity, the means to be pursued in the investigation are such as lead most surely to this end, and the physician who has courage sufficient to devote himself first to the rigid proof of the existence of the phenomena, and who will afterwards investigate their relations and seek to interpret the facts, pursues a more logical and useful course than he who discovers, or imagines that he has discovered an isolated cause with which he seeks to establish the connexion of the numerous facts that he witnesses. Indeed, the numerical method of observation, or in other words, the careful examination of facts followed by their numerical comparison is now recognised by a large number of physicians as the nearest approach to the method of study employed in the other sciences, with this difference, that the phenomena which we investigate are transitory and cannot be reproduced at pleasure as chemical or physical experiments, the proof of which is always readily

confirmed without the necessity of cyphers, which are indispensable to establish the more or less constant succession of the variable phenomena of disease. The imperfection of the method is not contested, but it is evidently the least imperfect of all; more truth and less error will be published by the observers who reason directly from their facts than by those physicians who are less rigorous—who simply write from imperfect recollection, and who attempt to fill up all voids with the creations of their fancy. Thus observation is essentially progressive, each succeeding observer fixes his point of departure at the spot where his predecessor had terminated his researches, and necessarily advances a little in the knowledge of truth; the progress depends on the epoch, not on the observer.

The cases of cerebral affections about to be related, comprise all those occurring in the boy's wards of the children's hospital at Paris, during eight months, from the first of August, 1832, to the 1st of April, 1833; during the four months, from the 1st of April to the 1st of August, 1833, all the cases admitted into the girl's wards will also be found in the collection, besides a few others that were collected before I had commenced a regular series of observations, or which I witnessed in divisions of the hospital in which I was not at the time habitually occupied. They were all mortal excepting two, which presented a totally different series of symptoms from those remarked in the other subjects. The classification is based upon the anatomical lesions of the cerebral organs, and is merely made for the convenience of the reader; in a subsequent article it will be retained or modified in conformance with the results of analysis. The title cerebral affection comprehends all the diseases in which the *predominating* symptoms consisted in some modification of the cerebral or nervous functions, excluding of course the cases of simple somnolence, stupor or delirium, and not even admitting convulsions or other grave symptoms which were merely the precursors of death, and not permanent or essential elements of the disease. Some examples of these cases will be given to establish the evident distinction between the two classes. Three divisions are for the present adopted; the 1st includes such subjects as presented some evident incontestable lesion of the brain or its membranes without the existence of well-characterized tuberculous or other accidental tissues; the 2d includes the cases in which these accidental structures coincided with the cerebral symptoms, and the 3d the subjects offering doubtful or extremely slight anatomical traces of disease. To complete the series it will be necessary to enumerate such cases as presented a lesion of the brain without being preceded by marked symptoms during life. The anatomi-

cal classification is the most precise, and being based upon material facts, which are recognised without much difficulty, the transition is afterwards more easy to the cases which terminate happily.

Observation I.—Rebours Alfred, six years of age, entered the 1st of February, 1833. Born at Paris.

The following history I obtained from his mother, a woman of remarkable intelligence. He is the second child, was attacked with convulsions at the age of four months, immediately after a fall upon the floor, the convulsions returned frequently, especially during the period of dentition, which commenced at nine months and terminated at the age of three years: at this last epoch he was taken with croup, (diagnosis of the physician who attended him;) during the disease convulsions supervened, leeches were applied behind the ears, but the convulsions returned four times. From the age of three to four years he enjoyed perfect health; an eruption of scarlatina then appeared preceded by convulsions, which ceased as soon as the eruption became general. At five years he had measles, with return of convulsions before the eruption. Since that time he has had no convulsions, his health good, excepting a fever in August last accompanied with diarrhœa. He was vaccinated five times without success; has had an eruption of varicella, but neither small-pox nor whooping-cough. The child is very intelligent, lively, and impetuous; learns readily; was fat and strong until August last, since that time he has become thinner, but has not coughed. Eight weeks before his entrance an eruptive disease of the scalp appeared, which no longer existed notwithstanding the application of irritants to keep up the secretion at the end of four weeks.

On the 2d or 3d of January he fell in going to school, striking the back part of the head; since that time he complains of head-ache, but did not cease going to school until the 16th, when, after some days of increased cephalalgia, especially when near the stove, he returned home, complaining of severe pain in the head, and immediately vomited a greenish liquid. He was put to bed, and eight leeches were applied behind the ears; their application threw him into a violent fit of anger, accompanied with a convulsion characterized by the movements of the eyes and strong contractions of the limbs. From that time he was confined to his bed, the vomiting returning on several successive days. Since the month of August he has had a diarrhœa of five or six discharges daily, which ceased, and was replaced by obstinate constipation eight days before the symptoms. He has had fever; the convulsions have returned very frequently up to his entrance, especially after a second application of leeches to the tem-

ples three or four days previously, which was again followed by violent anger. Delirium within two or three days only.

Present condition, February 2d.—Hair and complexion fair; rather thin; skeleton well formed; decubitus dorsal; face pale; features not much distorted, but risus sardonicus when spoken to, and frequent grimaces, extending to all the muscles of the face, with slight spasmodic movements of the jaw and lips—the corner of the mouth a little drawn towards the right side. Eyes not injected, slight strabismus of the right, pupils neither dilated nor contracted, natural; stupor constant, but easily dissipated on speaking to him; answers are sometimes correct, at others incoherent; delirium and cries during the night; movement and sensibility natural, without rigidity; he asks for food more frequently than drink; tongue trembling, moist, whitish and villous at the centre, reddish at the edges, not evidently deviated; deglutition easy; abdomen retracted, appears tender to pressure; no dejections; heat pungent and dry; pulse 80, small and feeble, but regular; respiration 26, irregular, a little elevated without dilatation of the nostrils, pure. Milk; hot pediluvia with ashes, (twice;) potion of Chaussier.

3d, 9 A. M. Delirium during the night, commencing at 8 o'clock last evening; since daylight he is calm; same decubitus; profound coma; eyes hollow; pupils dilated, contracting a little in a bright light, without a marked difference in size, regular, slight strabismus of the right eye; sensibility of the skin generally much increased, the slightest touch interrupting the coma and producing complaints; he complains of pains in the forehead, but says he has none elsewhere. Movements of the limbs natural, without the least rigidity; mouth slightly drawn to the right side, frequent movements of the lips; answers generally correct; voice natural; deglutition easy; heat dry, but not acrid; breath fetid; cough rare; pulse 80, regular; respiration 20, irregular, unequal; percussion of the chest sonorous, respiration vesicular without rhonchus; occasional complaints of pain in the abdomen. Potion of boric acid repeated; calomel, gr. iss.; $\frac{1}{2}$ enema; diet.

5 P. M. No subsultus observed; heat increased; pulse 120, quick and regular; respiration 30, high, irregular; same stupor, but sometimes he asks for drink.

4th. Coma alternating with delirium; convulsive movements of the limbs at noon; the other cerebral functions carefully examined offered no change since the 3d, still constipated; abdomen retracted, the same complaints on pressure as on the rest of the surface; no plaintive cries, or cough or dejection; urine twice or three times in the

day, as previously voluntary; pulse at 5 o'clock 136, small, quick, and regular; respiration 20, irregular and high. Same potion of ℥j. boric acid to ℥v. of vehicle; 2 pediluvia with mustard; milk.

5th, 8 A. M. Agitation and delirium during the night; same decubitus, knees more elevated; face paler; eyes more hollow; mouth a little opened, not evidently distorted; eyes closed habitually, same state of pupils; ill humour if touched; no rigidity of the muscles; sensibility of the skin generally augmented; the purple spots noticed at his entrance have now nearly disappeared; answers rather more distinct; cephalalgia; no subsultus; abdomen retracted—he complains when pressure is made upon it; thirst; deglutition easy; he never asks for food; constipation; skin hot; pulse 104, quick, small, regular. R. Calomel, gr. v. in three doses at two hours interval; enema with ℥ss. of castor oil; sinapism to feet, twice; potion with boric acid.

6th. Delirium during the night; same decubitus; mouth at present slightly deviated towards the left side; face pale; lips red, not swollen; eyelids adhering from the dried secretions; pupils dilated; strabismus doubtful; sensibility diminished, movement as before; no subsultus; coma more profound; answers extremely rare; skin hot; pulse 119, trembling, feeble, irregular; respiration irregular, high, stertorous, 20 per minute; abdomen retracted, indolent; no dejections. A drop of croton oil; blisters to the legs. Deglutition easy; the croton oil was followed by a copious evacuation half an hour afterwards; but the same coma which existed since 7 o'clock in the morning continued; no convulsions nor cries.

7th, 8 A. M. The same symptom continued during the evening of yesterday; some involuntary movements of the arms were observed; mouth closed, both commissures depressed, the left more than the right; pupils equal, less dilated, perfectly insensible to a strong light; insensibility complete without rigidity of the right limbs, the left are less insensible, not rigid; some vague motions of the arm occasionally; no subsultus; no replies; deglutition still possible; skin cool; pulse feeble, trembling, but regular, 180; respiration stertorous, 43; abdomen very retracted, indolent; another copious dejection during the night. An hour later the pulse was insensible.

Death at 3 P. M.

Autopsy the 9th, forty-two hours after death.—*Exterior.* Slight rachetic deformity of the knees and feet; rigidity of all the limbs, especially the inferior; slight lividity of the thighs and posterior parts of the body, which is pale in general; slight emaciation.

Head. A little blood flows from the exterior of the dura mater; longitudinal sinus empty; arachnoid very dry on the convex surface

of the brain, no serosity beneath it; convolutions of the brain flattened; pia mater injected, especially posteriorly in the large veins, it may be detached without tearing the cortical substance. The arachnoid upon the convexity is neither transparent, nor granulated. *Base*, presents a general yellow or straw colour in its middle portion, including the pons varolii, medulla oblongata, a part of the anterior and middle lobes of the cerebrum, the polygon behind the optic nerves, and nearly the whole of the inferior face of the cerebellum. The arachnoid in the yellowish portions has lost its ordinary polish on its free surface, and presents beneath it, (that is, in the pia mater,) a yellowish concrete, firm matter, similar to concrete pus, and not very friable. The thickness of this substance or false membrane is very variable—near the commissure of the optic nerves it is about a line, diminishing towards the anterior and lateral parts of the cerebrum. The anterior lobes of the cerebrum adhere together by a numerous net-work of vessels; they cannot be separated without tearing the cerebral substance. Between the crura of the cerebrum, and beneath the yellowish substance described, we found an ecchymosis of blood which penetrated into the substance of the crura along their internal face to the thickness of one to two lines; the same infiltration of blood into the cerebral substance extends continuously into the two fossa of Sylvius to a greater degree and for a more considerable distance in the right than the left. The sides of the fossæ adhere by abundant filaments formed apparently by vessels and the yellowish concrete substance. The optic nerves adhere strongly to the brain. Arachnoid in general may be detached without injuring the cortical substance. Lateral ventricles contain about three ounces of limpid serosity in the two cavities. Consistence of the cerebrum normal, cortical substance moderately coloured; the medullary a little dotted with blood—the part of the crura nearest the ecchymosis is a little yellowish but firm. Cerebellum pale, firm; arachnoid rather more adherent than on the cerebrum. Pons varolii and medulla oblongata firm, pale. Foramen of Munro dilated, fornix and septum lucidum as well as the three commissures retain their usual aspect. Spinal marrow firm, white.

Abdomen. Stomach containing a dark-coloured mucous liquid; mucous membrane grayish, neither mamillated nor injected; consistence normal; strips three to five lines in great tuberosity, six to eight on the faces, one to two inches on the small curvature. Duodenum yellowish, containing very few crypts.—Small intestine. Upper half coloured yellow by the contents; the valvulæ a little greenish; no redness excepting at the lower part of the ileum, which offers some arboriza-

tions; consistence every where good; glands of Peyer little prominent, of the same colour as the adjoining membrane; isolated follicles not noted; mesenteric glands firm, not tuberculous, of the usual size.—Large intestine. Contents not noted; cœcum and ascending colon offer numerous arborizations which cease in the transverse colon, the membrane afterwards is pale; consistence every where good; strips more than an inch in length.—Liver of middle size, of good consistence, not fatty; gall-bladder contained a dark bile.—Spleen three inches in length, containing a small tubercle.—Kidneys firm, livid.—Bladder contracted.

Thorax. Lungs a little engorged with blood, especially on the left, but crepitant and permeable, not hepatized nor tuberculous; some bronchial glands of different size are tuberculous, yellow, and friable. Heart presented nothing remarkable—details not noted.

The previous history in this case is more perfect than can be obtained from many children at the *Enfans Malades*; the child was born of parents subject to convulsions, the same disposition seems to have been transmitted to their children. The subject of this observation was intelligent, lively, but irritable and delicate, subject to cerebral symptoms when other diseases existed, each application of leeches augmented instead of diminishing the convulsions. An accidental fall upon the head seems to have been the exciting cause of the symptoms which preceded death. These followed an ordinary course—vomiting, constipation, somnolence, delirium, coma, with convulsions. The anatomical lesions of the arachnoid were very marked, but the brain presented a lesion of its substance, consisting in a yellowish colour of the crura without softening, and an ecchymosis of considerable extent. Some tubercles existed in the bronchial glands, but not elsewhere. The intestinal canal offered nothing remarkable, notwithstanding the habitual diarrhœa.*

* The following details were learned as to the health of the relatives of the child. His mother is now 28 years of age, well formed, but pale. She menstruated at 15 years, was married at 18, is subject to convulsions from infancy, which increased in frequency from the age of 9 to 15 years, since then they have been less frequent, but not influenced by pregnancy; within the last three or four months she has had no attacks. She has had four children, the subject of the observation is the second; two others died of convulsions, at the ages of fourteen days, and eleven months: the youngest, a little girl six months old, is still living; she had a number of convulsive fits during the first six weeks after birth, she was then vaccinated, and has had none since. The father was also subject to attacks of epilepsy in childhood, but not since the age of 15 years. Neither the paternal nor maternal grandparents were known to have had convulsions.

Observation II.*—(Service of M. Jadelot.) Deucar Theodore, eleven years old, born at Marseilles. Spare habit, eyes and hair dark colour, habitual health good excepting some scrofulous abscesses on the limbs, the cicatrices of which are visible, one or two still present fistulous openings; lives in a damp porter's lodge with his parents, and within the last three months has been frequently obliged to sit up at night with his sick mother.

July 8th, 1832.—He was perfectly well, had not been up during the preceding night, went to bed in the evening, slept well until 5 o'clock in the morning, when he awoke with a sensation of dizziness, every thing seemed to turn around him, at the same time he was taken with nausea, and vomited a quantity of green bitter matter, followed abundant perspiration without previous chill. The vomiting was repeated ten or twelve times during the day. At 7 A. M. frontal cephalalgia, very intense, persisting during the whole day, with dizziness, anorexia, great thirst, a little colic, but no evacuations, urine abundant. During the night of the 8th and 9th he was awakened once or twice by the violence of the head-ache.

9th. Increase of the cephalalgia and vertigo, vomiting but only in the morning, eyes painful in a bright light. At 9 o'clock severe pains in the abdomen, and followed by one evacuation. At 11 chill with vomiting, afterwards fever and sweating which lasted almost all day. At 1 P. M. he is brought to the hospital. From that moment the dizziness ceased, but the cephalalgia was still very intense, thirst greater, urine abundant, perspiration copious during the whole night.

Actual state, July 11th, morning.—Coloration of the face and body generally natural; intelligence. (Preceding details furnished by himself.) Answers prompt, distinct; frontal cephalalgia moderate; he has never felt formication or drowsiness; pupils contractile, light easily tolerated; thirst intense; appetite doubtful; neither nausea nor colics; abdomen well formed; tongue rose at the edges, villous and pale at the centre, moderately moist; no cough; respiration pure; pulse 72, developed, regular; skin hot and moist, appearance of good health, but sensation of feebleness; thinks he could not walk. Venesection, \mathfrak{Z} viiij.; $\frac{1}{4}$ enema with gtt. iv. laudanum of Sydenham; poultice to abdomen; infusion of mallows; milk. No change during the day except profuse perspiration in the afternoon, in the evening vomited several times after taking some broth; sleep very sound. On the morning of the 12th cephalalgia rather more severe, no dizziness,

* Read by M. Mannoire to the Société Médicale d'Observation, the 27th October, 1832.

thirst moderate, appetite good, abdomen yielding, not tender; tongue not so white, skin moist; pulse 80, less developed than yesterday. The blood drawn from the arm presents a thick, firm, black coagulum, not buffed, serum moderately abundant. Tisane of liquorice and nitre; common enema; cataplasm to the abdomen, with $\mathfrak{z}\text{i}$. laudanum of Rousseau; broth.

From the 13th to the 17th the state of the patient improved daily, after a warm bath on the 13th the cephalalgia disappeared, the appetite was good, thirst natural, dejections natural, no chills or perspiration or pain in any part of the body; pulse counted in the morning was always between 70 and 80, regular; one vomiting the 16th after taking some soup which he disliked; he asked permission to leave his bed.

On the evening of the 17th no change having occurred during the day, the patient is suddenly affected with severe frontal cephalalgia without previous chill, the pain was most severe on the left side; the eyes became painful on exposure to the light; night agitated.

18th, at 9 *A. M.* Pain in the head continues, the patient is dejected, face rather pale than red, eyes half-closed, painful when exposed to the light, pupils contractile, equal, sight natural, slight somnolence; intelligence perfect, anorexia, no thirst; abdomen yielding, not tender; skin hot and dry; pulse 68, full, regular; during several of the preceding evenings it was a little more frequent, with increase of the heat of the surface. Eighteen leeches to abdomen, emollient poultice afterwards, fomentations of mustard to legs; tisane of liquorice; tartaric lemonade.

On the 19th the same cerebral symptoms continued, especially the head-ache which was constantly more severe on the right than the left temple; somnolence great, the patient attributes it to the bright daylight; answers obtained with difficulty; expression of pain, nausea, and two liquid stools this morning without colic; during the night cough and frequent sneezing; the respiration is pure but feeble; he complains of pain in the throat in swallowing; pharynx natural; pulse 60. Six leeches behind the left ear, ten behind the right; cold compresses to the head; sinapisms to legs; tisane.

20th. Pain in the head persisted after the application of the leeches, but diminished during the night; eyes constantly closed; answers slow, reluctant, but perfectly correct; cough and pain in the throat diminished; sinapisms to eyes; emollient cataplasm to abdomen; vinegar poultices to the ankles.

21st. Without pain when at rest, but as soon as he is touched or moved, he cries and complains of suffering pain. Right eye painful,

he resists strongly any effort to open it; left eye not painful, opened voluntarily; pupils natural, contractile; head inclined towards the right side; both arms equally sensible to the touch, muscles contract with equal force. Friction to the chest, with tinct. camphoræ, et vini cinchonæ, āā. ℥iv.; ether acet. ℥j.; infusion tigliæ; vinegar poultices to feet; warm bath; musk, gr. iij. in six pills.

22d. Less cephalalgia; motion still very painful; somnolence; the child neither speaks nor moves during the whole day; says he is thirsty, and desires food; abundant perspiration yesterday, especially in the evening; night tranquil. Same prescription.

23d. Amelioration continues; pain in the head moderate, confined to the right temple; motion more easy; decubitus indifferent, variable; less drowsy, but answers still unwillingly; perspiration again profuse last evening; appetite and thirst great; tongue rosy at the edges, yellowish and villous at the centre, moderately moist; lips encrusted for some days past; breath fetid since his admission into the hospital. During the last five days the pulse was between 60 and 70, full, and regular; slightly irregular on the morning of the 23d; respiration natural; skin always hot and dry, excepting during the sweat just mentioned; heat increased in the evening; no vomiting; a little nausea the 20th; tongue rosy, pale, villous and moist. Every day from two to five liquid dejections without colic; thirst generally moderate; urine abundant; abdomen yielding, not tympanitic nor tender; face emaciated, not highly coloured; expression sad, indifferent; eyes almost constantly closed.

On the morning of the 24th he said he was much better, and felt no pain. Sleep natural; somnolence much diminished; answers not so slow; skin warm and moist; pulse 64. At 2 P. M. his parents visited him, and found him with his eyes opened, perfectly awake, but notwithstanding the most pressing entreaties they could not obtain from him a single word of reply. No delirium during the night.

25th, at 9 A. M. Decubitus on the left side; the left cheek reposing on the palm of the hand; inferior extremities semiflexed; attitude perfectly natural; air of complete indifference, and half stupor; not the least answer; he seems not to perceive that questions are asked; face slightly coloured, especially at the cheeks; no distortion; eyes half open, move naturally in their orbits; the right pupil more than two lines in diameter, even when exposed to a bright light is slightly irregular, and nearly insensible; the left is smaller, contractile, regular; expression of pain, and frowning when his head is touched; much more resistance in extending the left than the right arm;

movement however still voluntary, for the patient replaces the left hand on his head immediately after its release; sensibility preserved in both superior extremities, but somewhat obtuse in the lower; respiration 30, regular, a little elevated; pulse 62, regular, rather full; temperature of the face and arms natural, that of the body and lower extremities a little elevated; skin dry; abdomen hot, tympanitic; upon pressing it the muscles contract without causing grimaces; one rose, lenticular spot and two or three particles on the abdomen. Blister to the back of the neck; fomentations of mustard to the legs; musk, gr. iij. in six pills; frictions with acetic ether. Same state during the day and night; no delirium; stools and urine involuntary.

26th. Decubitus dorsal; sensibility of upper extremities equally obtuse, the right is in a state of nearly complete resolution, and falls heavily when raised up, but still capable of some slight voluntary movements; the left sensible to pain, and contractility natural, but a few moments after the examination it offered a marked contraction, the wrist and forearm in semiflexion, impossible to extend, when the effort is made the marks become tense and resist most strongly; sensibility not very obtuse in the lower extremities; motion voluntary; skin hot; pulse 80, rather full; respiration 30, high, regular, noisy at times; slight cough; brownish froth on the lips; breath very fetid; abdomen flattened, resisting. Calomel twelve grains in three doses; eight leeches to the right temple. Same state; but respiration more stertorous. Death at 9 P. M.

Autopsy the 28th, thirty-eight hours after death.—Temperature rather cool; lividity of the whole posterior part of the trunk; abdomen greenish.

Head. Blood rather abundant at the exterior of the dura mater; a long semitransparent fibrinous coagulum in the longitudinal sinus; some very slight adhesions between the cerebral arachnoid and that of the dura mater; general aspect of the convolutions flattened, and rather moist; the large cerebral veins of both hemispheres, but especially the left, are engorged with blood, between them are a multitude of fine arborizations giving to the external surface of the brain a general red colour; around the large veins mentioned, but not in the intermediate space, the arachnoid is of a light straw colour, semi-opaque, as if a very small quantity of pus had been deposited around these vessels; this appearance is irregularly distributed on the two hemispheres, more marked on the lateral and middle part of the right hemisphere, where upon cutting through the arachnoid little masses of that substance of the appearance and consistence of buffy

coat of blood can be detected from the surface of the brain; no infiltration beneath the arachnoid; pia mater detached with difficulty, tearing a little the cerebral substance, especially on the right side; the cortical portion is of a violet tint, evidently a deeper colour than in the natural state, but of good consistence, except in the right temporal region a little above and anterior to the ear, where it seems a little softened; below this point it has a slightly yellowish tinge, and forms a little mass, of the size of a large bean, rather hard, traversed by a large number of voluminous vessels, whose orifices are open, and contain blood and not pus; the same aspect is presented in the fossa of Sylvius, into which this yellowish hard substance is introduced, it is a line and a half thick, and traversed by open vessels, strongly adherent to the two lobes forming the fossa, and surrounded by a thin layer of softened cortical substance.

At the *base* of the brain the yellow semi-opaque matter existed around the vessels which enter the two fossæ of Sylvius, but to a much less degree on the left than the right side; the same appearance was found around the veins of that portion of the superior face of the cerebellum, without softening of the subjacent cineritious substance. The medullary substance of the brain is moderately dotted with blood, of a light violet tint; each lateral ventricle contains two or three tea-spoonfuls of limpid serosity; the central portion, especially the posterior pillars of the fornix and the septum lucidum, are very easily torn, a touch reduces them into little filaments floating in the serosity of the ventricles, their whiteness is perfectly preserved; plexus choroïdes pale; corpora striata, optic thalami, annular protuberance and cerebellum offer no lesions; the sinuses of the base of the brain are filled with black blood half liquid, half coagulated.

Thorax. Pericardium contains half an ounce of transparent serosity; heart, size of the fist of the subject; right cavities containing much coagulated blood, and a little fibrine; the left very little blood; parietes of the left ventricle from four to five lines in thickness, those of the right two; left pleura contains an ounce of reddish serosity; left lung without adhesions, retains its form after removing it from the chest, of a general pale violet colour; several groups of blood-vessels are remarkably developed beneath the pleura at the lower part of the upper lobe; the pulmonary tissue in the upper lobe is reddish-brown, very crepitant, spongy, containing little blood; the lower lobe offers the same aspect in the greater part of its extent, in some points only are nuclei of a pale colour, the section is granulated, contains no air, and is very friable; bronchi pale, containing some puriform mucus; a bronchial gland on the outer side of one of

the largest, is converted into yellowish and blackish cretaceous matter; right pleura contains no serosity; the upper half of the right lung presents some cellular adhesions easily broken; the surface is of the same colour as the left, and presents some bands of interlobular empyreuma; pulmonary tissue fawn colour, containing little blood in the upper lobe, but more in the lower, though without traces of empyreuma. *Larynx* pale, perfectly healthy, containing a little purulent mucus; same contents in the pharynx.

Abdomen. No serosity in the peritoneum; stomach of middle size, contains three or four ounces of black liquid, mixed with little blackish flocculi; mucous membrane presents a marbled-rose-colour with some large arborizations, and a little dotted redness along the small curvature; the membrane yields even in the large tuberosity strips of two to four lines, more than an inch in the small curvature, and five or six lines every where else; slight mammillation near the pylorus; small intestine brownish externally, containing a little dark yellow mucus; invagination two or three inches in length in the middle of the intestine; a little brownish matter, and one lumbricus in the last half of the intestine; a few isolated crypts are visible at the commencement of the jejunum, but none near the end of the ileum, in which are eight or ten agglomerated glands, irregular, little prominent, of the same colour as the intestine, dotted with black points; general colour of the mucous membrane like that of the contents; thickness natural; consistence good; strips three or four lines in length in the jejunum, six to eight in the ileum, the last half of which presents some delicate arborizations; mesenteric glands small, grayish-rose colour, firm; large intestine contracted, containing some soft fecal matter; mucous membrane pale, slightly rose coloured, with some scattered arborizations; follicles with black central points visible beneath the membrane; thickness and consistence normal, strips eight to twelve lines. Liver extrude a little beyond the ribs, brownish-slate colour, firm, containing little blood. Spleen three inches long, pale claret tinge, good consistence. Kidneys firm, livid red, containing much blood. Bladder contains half a glass of urine with an abundant flocculent sediment; internal membrane finely injected, firm, not thickened.

I am indebted for this observation to my friend Mr. Mannoir, of Geneva, who collected it during the period we were both engaged in observing at the children's hospital. It is relative to a scrofulous child who had not perfectly recovered his health, and besides the unfavourable circumstances of a damp, gloomy lodge, and the nearly absolute privation of exercise to which a large number of the children

of porter's are condemned at Paris, he was obliged to undergo unusual fatigue in nursing his mother. The affection offered three distinct periods, the first characterized by vomiting which lasted two days, dizziness, somnolency, sensibility of the eyes, frontal cephalalgia, these symptoms diminished perhaps partly from the effects of the depletion. The second period, we remark return, and augmentation of the cephalalgia, especially on the right side; the cerebral functions are not more affected than in the first period, there is neither delirium nor alteration of the sensibility or motility; the third period was announced by the loss of consciousness, and the paralysis of sensibility of the upper extremities, with contraction of the left side, and complete relaxation of the right. The whole duration of the disease was eighteen days, the complications were slight and confined to a little diarrhœa. The anatomical lesions consisted in the infiltration of purulent matter at the base of the brain, but not considerable effusion into the ventricles; the cerebral substance was softened in a limited extent near the surface, and also the central part of the brain, but the nature of the latter lesion is not yet satisfactorily known, and certainly in the present case, in which the autopsy was made a considerable time after death, might have existed independently of any cerebral affection. The thorax presented nothing but some cretaceous matter in one of the bronchial glands, a fact insignificant in itself, but highly interesting when viewed in connexion with the scrofula with which the patient had been affected. The bronchial glands in children frequently present the tuberculous degeneration without traces of it elsewhere, a circumstance not observed in adults; attention should be turned towards these glands at all the periods of life, as the history of their lesions may aid in clearing the important question of the cure of tubercles. The abdominal viscera offered nothing remarkable. The treatment was equally unsuccessful in this case as in those which follow.

*Observation III.**—A boy, fifteen years of age, entered the Salle St. Jean, the 6th of August, 1832. (Service of M. Jadelot.) His father communicated the following details. He left the Hospital of La Pitié six weeks before his entrance; he had there been treated during a fortnight for cholera, which still was epidemic at Paris. He has never perfectly recovered his strength, although he returned to his work, (cabinet-maker,) but was unable to perform as much labour as usual. He complained of frequent pains in the head and abdomen.

* Read to the Société Médicale d'Observation, September, 1832.

Four days before his admission he was taken with nausea and vomiting, twice repeated, of green bitter matter, at the same time he had diarrhœa during two days, frontal cephalalgia, and insomnia, with slight cough. At his entrance he complained of cephalalgia, intelligence dull, answers extremely vague; chest sounds well on percussion; respiration pure; abdomen yielding, well formed, but painful, especially on pressure. During several days regular notes were not taken. The patient constantly complained of pain in the abdomen without either diarrhœa or tympanitis. M. Jadelot directed the day after his admission twenty-five leeches to be applied to the abdomen, and cold water to the head. The 9th he was bled; delirium came on the following night; agitation great before the venesection.

12th. Persistence of delirium. Eighteen leeches behind the ears, and ice to the head.

13th. Delirium augmented; constipation persists since his entrance. Venesection, ℥viiij. ; sinapisms to legs; ice to the head. After this date the observation was collected regularly.

Present state, July 14th.—Skeleton well formed; moderate embonpoint; complexion sallow; decubitus variable; vague unmeaning movements of the arms; stupor, accompanied with agitation, and frequently delirium characterized by unmeaning cries and words; insomnia nearly complete; frequent sighing and cries, but not apparently indicative of pain. He understands questions in a loud tone, and answers correctly, but the delirium is only momentarily interrupted; frontal cephalalgia; sight troubled; eyes dull, half-closed, but pupils contractile, not dilated, of natural appearance; no strabismus; hearing imperfect, with tinnitus aurium; sensibility and movement of all the limbs natural; face not distorted; heat moderate but dry; neither sudamina nor typhoid spots on the skin; tongue brownish, a little dry; teeth fuliginous, mouth remains half opened; abdomen retracted, presenting nothing on the exterior but the leech bites, some of which are in suppuration; pulse 80, a little irregular; respiration very irregular, alternately very frequent or slow; percussion of the chest sonorous anteriorly; respiration pure. Infusion of marsh mallow with syrup of ether; common enema; cataplasm to abdomen; diet; with grs. v. calomel in the evening.

15th. Delirium and insomnia during the night; this morning at times gay and laughing, at others sighs and plaintive cries; constipation persists; urine involuntary; pupils contractile, the left although exposed to a more direct light more dilated than the right; subsultus tendinum very frequent at the wrist; pulse 84. Warm bath; cold water to be applied to the head, and cataplasm to the abdomen; com-

mon enema; sinapisms to legs. The pulse was at 92 in the evening; respiration 28; tranquil in the bath, but subsultus tendinum rather increased; no amelioration followed it.

16th. Slept a little; delirium continues with the same characters; some floccilation, and efforts to detach his linen by pulling it forcibly; no sighing, but delirium less easily interrupted; answers less connected; pupils much dilated, especially the left, without strabismus; he moves his right arm much more than the left—both are generally semiflexed, resisting an effort to extend them; rigidity most considerable in the left arm, where it was doubtful on the 15th, but he flexes both hands at will, the left less strongly than the right; the same slight rigidity exists in the lower extremities, especially the left; hic-cough at intervals; abdomen tympanitic, a little tender on pressure; pulse 96, regular, quick, moderately developed; tongue dry, brown at centre, red at the edges; teeth as before. Blister to back of neck; stimulating frictions to chest and arms; emollient cataplasm to the abdomen; cold water to the head; tisane with nitre.

Evening. Tremor extending to nearly all the muscles of the body; pulse 96; no other change.

17th. Night agitated; delirium has now changed in character, less noisy, but more difficult to suspend, marked by muttering rather than cries; tremor of face and limbs continues; subsultus frequent; rigidity of the muscles of the face, head, and neck; muscles of the jaw resist strongly any effort to depress it, but afterwards he opens the mouth voluntarily; sensibility always nearly natural; pupils directed upwards, irregularly dilated, but equal; pulse 92, a little irregular, but quick and resisting; tongue less dry; skin hot and dry; abdomen tympanitic. Tisane of liquorice and nitre; inf. tigliæ; enema of starch with gtt. v. laudanum; milk diluted.

Evening. Coma more intense; rarely complains, and then feebly, and half articulately of pain in the head; countenance entirely changed; sensibility a little diminished on the left side.

18th. Tremor constant and general, causing a general appearance very like that of a person shivering after a cold bath; subsultus frequent; jaws firmly closed, very rarely opened; floccilation; no answers; rigidity marked in both arms and in the left leg; sensibility diminished in the limbs that are rigid; pulse 120, difficult to examine on account of the frequent subsultus; tympanitis extreme; grimaces when the belly is touched. Syrup of ether; stimulating frictions; inf. tigliæ. Pulse 144 in the evening; no cries; tremor persists. Same state in other respects.

Death on the 19th at 5 A. M.

Autopsy the 20th, twenty-nine hours after death.—Exterior. Emaciation slight. Abdomen greenish, meteorized, two or three ulcerations corresponding to leech bites exist at the epigastrium. No œdema. Rigidity of the limbs moderate; some violet strips at the posterior part of the trunk and limbs; muscles firm, red. Placing the subject on the belly, an abundant greenish yellow liquid flowed from the nose and mouth.

Head. A little blood on the exterior of the dura mater; longitudinal sinus entirely empty; no effusion into the great cavity of the arachnoid nor beneath the membrane at the convex surface of the brain; pia mater can be easily detached from the brain, its vessels are moderately distended with blood.—*Base.* The arachnoid covering the commissure of the optic nerves is yellowish, opaque, and presents a thickness of three-quarters of a line, caused by the effusion beneath it of a pale yellow matter resembling concrete pus and very adherent. The arachnoid covering the anterior part of the annular protuberance presents the same semi-opaque aspect, but with less thickness. The part of the membrane upon the superior face of the cerebellum is also of the appearance just described, but only in the sort of crescent formed by that organ near the tubercular quadrigemina, that is the most anterior part of it. From this sort of crescent the yellow substance extends upon the cerebellum to the breadth of three or four lines, until the arachnoid gradually resumes its transparency. The membrane is thickened but not yellow in the fossa behind the crura of the cerebellum, in the rest of its extent it retains its ordinary aspect, except on the lateral part of the right hemisphere where it is a little rosy, apparently from ecchymosis. The large vessel contained within the fossa of Sylvius of the right side, is filled with a black and firm coagulum, and surrounded with a dense whitish matter, grating beneath scalpel, and except in colour resembling the yellow substance described: it forms a sort of sheath around the vessels, and agglutinates the parietes of the scissure. A similar lesion but to a less degree exists on the left side. The convolutions on the summit of the brain are a little flattened, the cortical substance pale, and the medullary very little injected. Brain *throughout firm*, and of its normal appearance. About two ounces of serosity contained in the two ventricles flowed from an incision into the right. Cerebellum and annular protuberance of normal firmness, very little injected. The arachnoid covering the first inch of the medulla oblongata is a little opaque, hard and thickened. Spinal marrow firm, white without appreciable lesion. Very little serosity at the base of the brain, or in the spinal cavity.

Neck. *Larynx* grayish, not ulcerated.—*Pharynx* pale, not ulcerated.

Thorax. *Pericardium* contains about an ounce of reddish serosity.—*Heart* flaccid, containing a fibrinous coagulum infiltrated with serosity in the right cavities, a little fluid blood in the left. The whole internal coat of the heart and great vessels is of a livid-rose colour.—*Pleuræ*, each contains a little reddish serosity, some slight cellular adhesions on the left side.—*Left lung* crepitant, distended with air, greenish in some points; tissue in both lobes bright red, light, and contains a certain number of gray semitransparent granulations a little tinged in green, and separated by healthy tissue; no tubercles nor hepatizations. Right lung presents the same aspect, and similar granulations scattered throughout its upper and lower lobes, the middle contains one or two tubercles of the size of peas, not softened. At the bifurcation of the bronchia there is a ganglion of the size of a small walnut, completely transformed into yellow tuberculous matter, marked with dark bands and not softened; a few tubercles are scattered beneath the costal pleuræ.

Abdomen. Three or four ounces of reddish serosity in the *peritoneum*.—*Stomach* of moderate size, contains some black liquid; mucous membrane much wrinkled, of a grayish tint, with a few scattered arborizations, not mammillated, but containing within its thickness in the two inches nearest the pylorus an abundance of little white points of the size of pin's heads, scarcely projecting above the level of the membrane; thickness normal, strips from three to five lines in the great cul-de-sac, seven to eight great curvature, and more than an inch in the small; (a long rusty pin is in the midst of the contents.)—*Duodenum* tinged by the bile, containing a multitude of muciparous crypts.—*Small intestine* contains some gas, greenish externally, containing in its whole length a moderate quantity of mucous matter, greenish superiorly, but afterwards darker, and nearly black towards the end; the mucous membrane is alternately pale, and dark green in the points where the liquid existed; but in the last half where the blackish matter was found, it is nearly everywhere pale; thickness natural; consistence natural in the first half, strips of eight to ten lines even in the part where the green colour is most intense; in the second half the membrane is very thin, and yields strips only from three to five lines, the cellular tissue is emphysematous beneath it; (perhaps the partial softening is cadaveric;) agglomerated glands of Peyer scattered, but not abundantly in the last half of the intestine, they are slightly reticular, a little elevated; a few near the valve dotted with black points; a very few isolated

crypts of Brunner near the middle of the intestine, where there are some arborizations of small extent.—*Large intestine* distended with gas, containing an abundant black pultaceous matter; mucous membrane of a light greenish-brown in the cœcum, where the strips are eight to twelve lines long; in the ascending colon it is pale, thin, and yields strips of nearly two inches long; in the transverse colon it is brownish, and offers some isolated follicles with central points, giving long and thin strips; in the rectum equally firm, but pale, and a little thicker.—*Mesenteric ganglia* small, pale, firm, not tuberculous.—*Liver* of the usual volume and consistence; tissue pale and containing very little blood; gall-bladder small, containing a little yellowish bile.—*Spleen* nearly four inches long, flaccid, brownish externally, livid internally.—*Kidneys* of the usual size, pale, the two substances very distinct.—*Bladder* distended with urine; some large ecchymoses at the great fundus, and some fine arborizations in the rest of its extent; greenish in points, with an odour of putrefaction; mucous membrane yields strips eight or ten lines long, even in the reddest portions; the ecchymosis is common to the mucous and cellular tissue.

This case is defective as to the previous history of the patient, and a detailed examination was only made during the four last days of his life. The subject of this case was the oldest observed, the meningitis began in an enfeebled subject who was still suffering from the sequelæ of cholera, and as the autopsy proved, he was tuberculous; it began by *vomiting*, slight diarrhœa succeeded by *constipation*, cephalalgia and insomnia. Delirium supervened on the eighth day, augmenting constantly until it was succeeded by profound coma previously to his death, which took place on the 18th. The other cerebral symptoms were rigidity of the limbs, especially of the left side, beginning on the 14th day; floccilation, dilatation of the pupils, subsultus tendinum, and shivering of the whole body; no convulsions occurred during the hours I passed in the ward, (four or five daily.) Deglutition not noted; abdomen tympanitic, apparently sensible; constipation; slight cough; but pure respiration during the whole course of the disease, which pursued a regular march, the symptoms gradually increasing in intensity until his death. The treatment which was not deficient in vigour at the beginning produced no sensible effect. The anatomical lesions of the brain consisted in an opacity of the arachnoid at the centre of the base, and in the fossa of Sylvius, especially on the right side; but the cerebral substance was every where perfectly firm, and without the least appreciable lesion; the ventricles containing a moderate quantity of serosity. On the convex sur-

face the arachnoid was remarkably dry, and adhered closely to the convolutions which were evidently more flattened than usual. The other viscera offered nothing remarkable, excepting the existence of tubercles in the lungs and bronchial glands. The commencement was similar to that of the last case, but here there was a constant but gradual augmentation of the symptoms, delirium supervened on the eighth day; in other respects the analogy is very close, both in the symptoms and anatomical lesions. But I shall not extend the remarks on each case, as the general summary will necessarily contain the most condensed and important statement of the results obtained by the comparison of the individual observations.

Observation IV. (Female ward; service of M. Jadelot.)—Erlemont Stephanie, five years and a half of age, entered the 18th of June, 1833. Born in French Flanders, but now living in the Rue St. Jacques. Before her arrival at Paris in September last, she had enjoyed perfect health, excepting an intermittent fever which lasted during several months last autumn, (common in her province.) She has been vaccinated, has not had measles, or any eruptive disease of the scalp, has never had convulsions nor worms, does not cough habitually, and is not subject to diarrhœa; appetite and digestion good; her health and embonpoint were not impaired at her arrival at Paris, notwithstanding the indifferent food to which the distress of her parents had confined her for some months. Since her residence in the capital, food abundant; intelligence developed; some lymphatic glands of the neck a little augmented in size within three months.

In the month of February her parents observed that she limped; a tumour formed on the instep of the left foot, which suppurated in the month of March, and has constantly discharged a purulent matter since that time. She was confined to the house on account of the affection of her foot, but was perfectly gay and playful; appetite and digestion excellent.

The 15th she was perfectly well; ate as usual at four o'clock; slept well until four o'clock in the morning, when her parents were awakened by the same plaintive cries she has so frequently uttered since; they then perceived that the left arm and leg were agitated by convulsive movements, but the members of the right side were stiff and motionless. Replies slow, reluctant, confined to yes and no; cries frequent, especially when agitated by the movements of the left side; mouth drawn to the left side during the convulsions, and permanently distorted on the 17th—left eye opened in the attacks; strabismus not perceived; vomiting only on coming to the hospital in the carriage; constipation since the beginning; she has eaten nothing but a

little soup with repugnance; no thirst; she drinks sometimes when a cup is put to her lips, but often refuses; heat of skin great on the left side of the body, not on the right; sleep troubled.

On the 19th of June she was not examined in consequence of her being placed by a mistake in a ward not appropriated to acute affections. The symptoms as far as noted did not differ from those observed the 20th when I examined the patient.

Present condition, June 20th, at 2 P. M.—Hair chesnut-coloured; embonpoint moderate; decubitus dorsal; head inclined to the right side; eyelids equally separated, leaving an interval of a line between the upper and lower; nostrils equally dilated, not in motion; lips violet but pale, and rather thick; the two commissures of the mouth depressed, mouth drawn a little towards the right side; sleep heavy, almost stupor; face pale: in awakening she opens her eyes and looks around her, the face becomes more coloured; pupils equal, regular, contractile, without strabismus, look fixed; hearing evidently preserved, but she seems not to understand the questions; humour tranquil; she moves her left arm and hand, frequently closes her fingers upon the hand; movements of the left leg equally free; sensibility on that side natural, neither apparently increased nor diminished; right arm motionless, falling when raised up, but always in the direction of the flexor muscles; rigidity and semiflexion of the elbow and wrist, but not of the fingers; sensibility very feeble, on pinching the skin smartly she withdraws the arm but very little; right leg slightly flexed, lying on its external face, rigid, and very little sensible on pinching the skin; jaws closed, rigid, sometimes movement of the lower as if triturating food; head slightly inclined backwards; no replies nor articulate sounds, but sometimes vague, low cries; deglutition nearly natural, slow; no dejection since her admission. (Abdomen not noted.) During the examination her father came to visit her, she recognised him without speaking; ate some strawberries; demanding more by gestures of the left hand. Sinapisms to legs; blister to the back of the neck; infusion of mallows. Yesterday eight leeches were applied behind the ears, another similar application had been made to the temples before her entrance.

21st, at 9 A. M. Pulse varying in frequency from 64 to 72, a little irregular; heat very moderate.

3 P. M. Decubitus dorsal, abandoned; face pale; lips livid, pale, thick; eyes opened at times; pupils contractile, equal, of natural size; a slight change of position renders the face injected; nostrils open, not in motion; head inclined backwards; same state of the right arm and leg as yesterday, but the rigidity is now extended to the fingers,

which are strongly flexed; left arm and leg still sensible; agitated frequently by movements, which seem voluntary; no subsultus; sight preserved, the eyes follow the movements of the hand or other objects held before them; no replies, cries not heard, but sighs very frequent; deglutition easy; no dejections. (Urine not noted.) Abdomen yielding, insensible to pressure; percussion of the chest sonorous; respiration pure and expansive. Prescription of the morning. Bladder of ice water to the head; six grains of calomel in three doses; cataplasms with vinegar to the feet; purgative enema; tisane of liquorice and nitre.

22d. Two doses of the calomel were taken last evening, and followed by a large evacuation in the night, (involuntary;) no convulsions.

9½ A. M. Face generally injected, but not of a livid-red colour—swollen since yesterday; lips same aspect; mouth not deviated; she opens her eyes, seems to see, but no longer follows with the eyes the movements of objects before them; pupils not contractile, equal, regular, a little dilated; same decubitus; right arm strongly contracted in all its articulations; the contractions of the muscles in most positions resisting the action of gravity; contraction instantly returning after forcible extension; sensibility increased, she withdraws the arm a little when pinched; the left arm is now rigid, perhaps more than the right; the elbow, wrist, and fingers strongly flexed, sensibility seems less than on the right side; rigidity of the inferior extremities slight, but sensibility very feeble; deglutition slow and difficult; no replies, no convulsions, but as previously frequent increase of the stiffness of the limbs with slight spasmodic movements; slight voluntary movements now occur from time to time in the *right* arm; no subsultus nor strabismus; cough loose, rare; skin hot; partial perspiration of the face; pulse 140, regular, very feeble; respiration high, regular, 36; chest sounds well on percussion, anteriorly and posteriorly; mucous rhonchus sometimes heard in the inspirations; palpitations of the heart accompanied with the bellows sound, (*bruit de soufflet*;) abdomen tympanitic, but insensible. Bath with cold affusions on the head; sinapisms to the legs; potion with ether; purgative injections. The bath produced no evident effect.

23d, 8 A. M. Same decubitus; face pale; eyes open, the left more than the right, covered with mucus, but not injected, pupils contractile, natural; nostrils dilate occasionally; mouth slightly open, a little drawn towards the left side; lips livid, pale; insensibility increased; rigidity persists on both sides, but now greater on the right than the left; deglutition impossible; respiration high, stertorous; no evacua-

tions; pulsations of the heart very feeble; chest sonorous anteriorly; mucous rhonchus very abundant on both sides; heat rather elevated; abdomen retracted, indolent. Tisane; cataplasms to feet.

4 *P. M.* Pulse irregular, trembling, 96; respiration stertorous, high, 48; face more injected than in the morning, sensibility diminished.

Death at midnight.

Autopsy the 24th, twelve hours after death.—*Head.* No blood on the exterior of the dura mater; a little serous blood without coagula in the longitudinal sinus. Arachnoid humid, but offering no serosity in its great cavity. Pia mater easily detached from the convolutions without destroying them; not at all injected; very little serum in some of the large veins only; arachnoid not thickened or granulated.—*Base of the brain.* The arachnoid around the commissure of the optic nerves, and in the space of rather more than half an inch posteriorly, was thickened, opaque, milky, but not offering a pseudo-membranous concretion. The left fossa of Sylvius presented a small number of hard, whitish granulations around the vessels, but neither false membranes nor injection. The right fossa presented a much larger number of granulations, forming clusters around the vessels; no false membranes; a little more injection than on the left side, but not to a considerable degree; very little serosity at the base. Cortical substance every where of a rosy tint, and very firm. Medullary moderately injected, firm. The lateral ventricles contained about three drachms of limpid serosity; the septum lucidum and fornix very soft but not diffuent; more easily torn than in the majority of subjects examined even at the expiration of a longer interval after death. Cerebellum quite as firm as the brain, not much injected. Annular protuberance and medulla oblongata firm and white. The whole cerebral mass carefully examined, contained no tubercles.

Spinal marrow. Vertebrae cautiously opened with the double saw of M. Charrière; after the section had been completed the spinal marrow was seized at the base of the brain, and drawn a little towards the occipital foramen, after a very moderate traction it broke at the base of the cervical vertebrae. In incising the dura mater, which was covered with some coagula of blood, the softening was found to exist in the extent of two to three inches in the part corresponding to the inferior cervical and superior dorsal vertebrae. The medulla retained its usual whiteness; the cortical and medullary portions distinct, but rather less so than usual; no vascular injection. In tearing the medulla by either of its extremities into ribbons, (which in the ordinary state can be done throughout the whole length,) they broke at the

softened part. Little serosity beneath the arachnoid, which was every where rather more closely adherent than usual. Larynx and trachea rose-coloured, not ulcerated.

Thorax.—Left lung slightly adherent; at the upper and posterior part of the lower lobe it is crepitant; the upper lobe of a rose-fawn colour, and the posterior two-thirds of the lower of a dark red; at the part of this lobe a little cluster of opaque tubercles of the size of small peas surrounded by a hardened impermeable tissue not granulated; the rest of the lobe is merely engorged with blood. Right lung contains some blood in its posterior part, but offers neither dilatation of the vesicles, hepatization, nor gray granulation. Bronchi rose-coloured, not dilated, containing a little mucus. Bronchial glands in part converted into tuberculous matter.

Abdomen. Stomach of middle size, containing a little mucus. Mucous membrane offers a general rose tint without marked injection; aspect polished, not mammillated; neither increase nor diminution of its thickness; consistence perfect; strips two inches in the small curvature, six to eight lines in the great, four or five in the great tuberosity. Small intestine of ordinary size, containing a yellowish liquid matter but no lumbrici. Mucous membrane throughout pale; consistence every where natural. Agglomerated follicles pale, little elevated, of the usual reticular appearance: a few isolated follicles towards the end of the intestine. Mesenteric glands small, firm, not tuberculous. Large intestine contains a quantity of pultaceous fecal matter; follicles very little developed; mucous membrane throughout pale, of natural aspect and consistence, yielding very long strips. Liver firm, containing little blood, not fatty. Other viscera present nothing remarkable.

The disease began suddenly without the usual precursory symptoms, but as in the preceding cases, it occurred in a tuberculous subject, who was also affected with scrofulous disease of the foot. The rigidity of the right arm was one of the first symptoms noticed, and at the very commencement was sufficiently marked to attract the attention of the parents of the child; it continued without intermission until death, which occurred much earlier than in the other subjects, at the end of the eighth day. The left side of the body was frequently the seat of strong convulsive movements, and in the last two days offered a degree of rigidity as great as the right side. No delirium was noticed; the intellectual faculties were very obtuse, but still retained on the fifth when she evidently recognised her father. Vomiting occurred on the third day after the appearance of the other symptoms; the constipation persisted during the whole affection. Passing

to the anatomical lesions we find very few traces of an affection of the cerebral mass; the granulations in the fossa of Sylvius, (more abundant on the *right* side,) were anormal, but whether they are to be regarded as the product of the acute affection, or as gray tuberculous granulations, is not perfectly certain. The softening of the spinal marrow was very remarkable; no doubt could be entertained as to its existence, for the autopsy was made before the body was perfectly cold, and the spinal column was opened in such a way as to preclude the possibility of mechanical injury of the spinal marrow. The septum lucidum and fornix were also evidently softened, but the quantity of serum in the ventricles was inconsiderable. The treatment was entirely without effect; indeed, at the admission of the patient it was evident that the termination would be fatal.

Observation V.—Jeannette, æt. 2, entered the 9th of June, 1833. (St. Catharine, female ward; service of M. Jadelot.)—The child was left at the hospital by her mother; she stated to the sister of the ward that the child had been sick five days, was constipated, but had not vomited.

Present state, June 9th, at 3½ o'clock, P. M.—Hair blond; complexion clear; face slightly rosy, but not red; lips rosy, of middle size; nostrils open, not in motion; eyelids equally opened; mouth nearly closed, not deviated; eyes gray, pupils insensible, contracted, equal; she does not open the eyes herself, the portion of cornea in contact with the air is covered with a film; the eyes are fixed, a little but doubtful strabismus; stupor profound; she neither sees nor hears; expression vacant; decubitus dorsal, abandoned; head inclined backwards; muscles of the neck a little rigid; upper and lower extremities generally lying motionless, and falling nearly if not quite independently of the muscles when raised up; slight rigidity of the elbows, but doubtful; sensibility of the surface diminished, smart pinching of the skin is necessary to make her withdraw her arms or legs; at times she raises her hands in the air, moving the fingers as if in search of objects, at others she joins them at the top of her head; feeble, plaintive cries when her head is moved, not uttered at other times; subsultus tendinum not remarked, nor convulsions; deglutition possible; pulse 76, feeble, irregular, both in the force and order of the pulsations; respiration 28, elevated, expiration heard at a distance; skin rather below than above the natural temperature; percussion sonorous in the anterior part of the chest, which could not be examined minutely; abdomen yielding, insensible. Prescription, eight leeches behind the ears; sinapisms to the legs; six grains of calomel in two doses.

10th, 9 A. M. Face generally pale; decubitus dorsal; head in-

clined to the right side, abandoned; nostrils not dilated; features not distorted; mouth closed; lips livid; eyelids separated to the distance of two lines, leaving exposed a part of the cornea which is covered with a film of mucus; pupils directed upwards, not visible; coma profound; neither replies nor other evidence that she neither hears or sees; insensibility almost absolute; the limbs paralyzed, falling immediately if without support; countenance entirely altered, characteristic of cerebral disease; when much disturbed she moves her hands a little without directing them to any object; face and chest cool; hands hot; respiration high, 26; pulse 132, regular, and sufficiently developed; abdomen yielding, insensible; no dejections. Ten leeches to the head, four of them behind the ears, the others to the temples; blisters to the occiput; frictions with ether to the limbs; common tisane.

4½ P. M. The heart had augmented; she moves her arms, and resists a little to the efforts to extend them, but without rigidity; eyes fixed, turned upwards; pulse 112, feeble and irregular. Death during the night.

Autopsy the 12th, thirty hours after death.—Exterior. Embonpoint considerable; livid spots on the internal parts of the inferior extremities; no rigidity.

Head. Almost no blood flows from the exterior of the dura mater; small fibrinous coagulum in the longitudinal sinus; convolutions flattened; anfractuositities nearly effaced; arachnoid dry, adhering closely to the surface of the convolutions; pia mater on the convex surface moderately injected in the larger vessels, and offering some patches of bright redness, on each side of the fissure between the hemispheres, and extending along the greater part of its length, the arachnoid contains rounded whitish bodies of the size of a mustard seed to that of a grain of millet, much less friable than tubercles; these granulations are not to be confounded with the glands of Pacchioni, which are much smaller, of a pearly-whiteness, and most visible at the posterior part of the fissure where the granulations are very rare. The vessels on the convex surface of the brain, are accompanied by little clusters of the same kind of granulations, but not sufficiently numerous to surround them; the arachnoid near them is opaque, but without increase of the general vascular injection. The hemisphere adhere at the bottom of the fissure by numerous cellular connexions easily broken by a little effort. Pia mater in general detached with difficulty, but the surface of the brain rarely torn on raising the membrane with ease. Base of the brain offers an ounce to an ounce and a half of limpid serosity. In both fossa of Sylvius around the large vessels, I found a pseudo-membranous yellow-

ish-white concretion, not extending beyond the fossa, and half a line to a line in thickness; some little rounded bodies can just be distinguished in the midst of this membrane, and from colour and consistence seem to be only another form of the same matter. The arachnoid covering the commissure of the optic nerves, and the polygon immediately posterior to them, is whitish, increased in thickness to a third of an inch by the concrete whitish substance effused beneath it, but can be detached more readily from the cerebral substance than this membrane on the summit of the brain. The opacity of the arachnoid extends to the adjoining parts of the base, and even to the superior and inferior surfaces of the cerebellum, disappearing by insensible gradations. The annular protuberance and medulla oblongata present the same aspect of the arachnoid, which is a little opaque to the termination of the superior third of the spinal marrow. Lateral ventricles contain an ounce and a half to two ounces of troubled milky serosity, but without injection or alteration of these parietes. Foramen of *Monro* rather larger than usual. Cortical substance of the cerebrum every where of a grayish-pink, the medullary portion less injected than usual. Corpora striata and optic thalami present a pink hue, a little different from that of the convolutions. The whole cerebral mass is of a perfect consistence. Septum lucidum and fornix white and firm; cerebellum not injected, a little less coloured, and not quite so firm as the cerebrum, (normal state;) medulla oblongata and annular protuberance very white and firm. Spinal marrow.—Arachnoid transparent in the inferior two-thirds, containing about an ounce and a half of limpid serosity; substance white and firm.

Abdomen. *Stomach* distended with mucosity; the great tuberosity is torn in separating it from the spleen; in this part of the organ all the tissues are grayish, softened, of a jelly-like aspect, and thickened; the same colour extends to all of them, but in a much greater degree to the mucous than the other coats. Anterior face irregularly shaded with livid, red spots, (of imbibition,) in other places it is yellowish or pale; its thickness is every where augmented, it yields no strips on traction, and is every where opaque; posterior face of a milky, dull-white colour, interspersed with very few red patches, but less opaque than the anterior face, not thickened, yielding strips of the usual length; no mammillation.—*Small intestine* containing a yellowish matter, but no worms; pale throughout, both as to its external and internal coats; mucous membrane yields strips of the usual length, (five to eight lines,) but they are brittle and require to be detached with much caution; agglomerated follicles of *Peyer* reticulated, very

little elevated, not dotted in gray or blue; isolated follicles of Brunner very numerous in the duodenum, rare afterwards, and again reappearing in the last three or four feet, some of which near the end of the intestine are less elevated than the others, and present a central point.—*Mesenteric glands* pale, grayish, firm, of the usual size, not tuberculous.—*Large intestine* contains a greenish pultaceous fecal matter; mucous membrane pale, a little opaque, but not evidently thickened, presenting no red injection; and but few submucous vessels in the cœcum; consistence rather less than usual, strips from seven to ten lines.—*Liver*, ordinary size, of a pale brown and yellowish colour, intermixed in patches; incision yellowish, not granulated; the two substances not distinct, not evidently fatty; bile greenish, moderately abundant; *spleen* firm, bluish; kidneys firm, of a violet tint at the exterior, which is smooth and polished when freed from its external coat; bladder pale, not distended; uterus firm, of the size of a large kidney-bean; larynx pale, not ulcerated; *lungs* not adherent, of a delicate rosy-fawn colour externally, paler internally; the lower lobe of the left a little redder than the others, internally and externally. The lungs are every where soft, containing little serosity, and neither hepatized nor containing tubercles nor gray granulations. Bronchi pale, not dilated; two of the bronchial glands near the bifurcation of the trachea are converted into yellow tuberculous matter. *Pericardium* contains a little lemon-coloured serosity; heart rather small, firm, containing a little fluid blood; large vessels pale.

Although the details relative to this patient before her admission into the hospital are wanting, we have still the precise date of the affection ascertained, for there is scarcely a possibility of error in recognising the peculiar symptoms of these affections. The child was well-formed but apparently feeble, *tuberculous*, although this degeneration was confined to the bronchial glands. The symptoms were those of the last stage of these affections, slow pulse, resolution of the limbs, insensibility, &c. The lesions of the brain consisted in a notable quantity of serosity in the ventricles, a deposit of the peculiar yellow concrete matter at the base of the brain, some granulations on the convex surface of the arachnoid, which is dry and adherent to the cortical substance, but the consistence of the cerebral substance throughout good. The stomach also presented a lesion of importance.

Observation VI.—Bellavoine Jules, æt. 6, entered the 21st March, 1833. (Service of M. BONNEAU.)—Habitually in good health, has had small-pox, but not measles. Two years since had an eruptive disease, (thick scabs,) on the face and head. During the last two months

frequent cough in fits, apparently whooping-cough, seven or eight returns of spasmodic coughing in the twenty-four hours, and easy respiration in the intervals; during the first four days vomiting, sometimes of blood; after each fit of coughing the blood was in considerable quantity, the parents estimate it as more than a pint in the first four days. He has not kept his bed, except in the first four or five days, but remained feeble and emaciated; no diarrhoea; cough diminished within the last four days; but vomiting frequent; rejects everything he had swallowed; entire alteration of the countenance; constipation nearly constant within the last three months; mother died of phthisis a month since; has one brother fifteen months old in good health; not stated if other children have died.*

Present state, March 22d, at 6 P. M.—Hair brown; emaciation moderate; no cicatrices on the neck; face pale, slightly swollen; lips red, swollen, rather dry; decubitus on the right side, avoiding the light; aversion to motion or external impressions; pupils dilated, contract but little, strabismus especially of the right eye; conjunctiva little injected; mouth not distorted; answers indirect, limited to yes and no; no delirium; humour capricious; sensibility natural, rather increased than diminished; no rigidity; frequent low moans; complains of pain in the chest, and sometimes in the head; tongue deep red at the point, grayish towards the base, moist; he neither asks for food nor drink; deglutition possible; abdomen retracted, indolent; one dejection, but not liquid; pulse scarcely felt externally, feeble, impossible to count; respiration high, irregular, sighing with dilatation of the nostrils; skin dry, but not very warm. Cold gum water; neutral mixture of Riverius; pill. ext. cinchonæ et bellad. āā. gr. j.; cold chicken water.

23d. No vomiting; a small liquid stool; no cries; some convulsive movements of the limbs and eyes; deglutition nearly natural; at present face more coloured than yesterday; decubitus more abandoned; forehead not contracted; slight redness of the right conjunctiva, but not of the left; pupils dilated, the left more than the right; eyelids equally open, moveable; eyes rarely directed towards the objects around the patient, but moveable with strabismus; continual movement of the lower jaw, without grinding the teeth; slight depression of the left corner of the mouth; aversion to protrude the tongue, which is deep red, dry, with some whitish spots; right arm slightly

* This history was obtained before the patient was seen, consequently the attention was not particularly directed towards the cerebral symptoms; it is evident, however, that they are of the same date as the vomiting.

flexed, rigidity doubtful; left much more flexed, rigidity not doubtful; knees slightly bent; muscles of the spine a little rigid, tendency to inclination backwards; intelligence more obtuse; no answers; respiration sighing, irregular, 36; pulse insensible; pulsation of the heart 144; abdomen retracted; percussion sonorous anteriorly; respiration nearly pure, without a trace of mucus.

Evening. Skin cool; pupils more dilated; rigidity in both left extremities augmented; no other change.

24th. Same countenance; no cries or convulsion during the night; decubitus dorsal; head turned to the right side; mouth deviated towards the right side; occasional spasmodic contractions of the muscles of the right side of the face; strabismus; pupils much dilated, not contractile; purulent discharge, and slight injection of the conjunctiva; rigidity in both arms, but moderate; smart pinching necessary to make him withdraw them; no rigidity of lower extremities; movements of jaw ceased; skin dry, but not very hot; pulse insensible; respiration high, sighing; mucous and subcrepitant rhonchus in the posterior parts of both lungs; abdomen yielding, retracted, still grimaces on pressing it.

Evening. Same aspect.

Death 25th, at 5 A. M.

Autopsy 26th, twenty-eight hours after death.—Exterior. Emaciation; no lividity; muscles pale; no rigidity.

Head. Very little blood on the exterior of the dura mater; fibrinous coagulum in the longitudinal sinus; moderate infiltration into the great cavity of the arachnoid, and beneath the membrane; small and large vessels of the pia mater moderately injected; cortical substance rose-coloured, of nearly the same tint at the convolutions and corpora striata; medullary portion moderately injected, consistence every where good; no tubercles found either in the cerebrum or cerebellum, which is not injected, and perfectly firm; pons varolii and medulla oblongata same aspect; some serosity at the base; pia mater in the fossæ of Sylvius, and around the commissure of the optic nerves is slightly opaque, partly from the abundance of vessels, and in fact from a large number of gray semitransparent granulations of the size of millet seeds, hard, apparently tuberculous, and seated in the membrane itself. Spinal marrow firm, pale; membranes not injected; (state of the ventricles by accident not noted, probably offering nothing particular.) Larynx and trachea rosy, not ulcerated. Pharynx and œsophagus pale, sound.—*Thorax.* Pleuræ non-adherent; both lungs offer the same aspect, dark red externally and internally, contain much spumous reddish serosity, but are not hepatized, and every where are still permeable to the air. Numerous small tubercles and

opaque granulations are scattered throughout the pulmonary tissue, especially in the upper part of the right lung, where the largest tubercle is of the size of a large pea. Bronchi a little reddish, containing some mucus. Bronchial glands not noted.

Abdomen. Stomach moderately distended, containing a blackish liquid, and lined with viscid transparent mucus. The two-thirds nearest the cardia offer a general yellowish white colour, traversed by bands more yellow than the rest; the mucous membrane is evidently thinner in these bands than elsewhere, (demonstrated by detaching it in strips;) beneath this membrane exist many large vessels distended with blood, but the membrane itself is throughout of a dull, opaque white, and easily broken, but not adherent to the cellular tissue, so that the strips are still long, six to eight lines in length in the portion described. In the pyloric third, mucous coat of a reddish-yellow, or onion-peel colour, with some spots of dotted redness, and much mammillated; consistence a little greater. Small intestine. Contents moderately abundant liquid matter; internal coat rosy at the beginning, pale afterwards, of good consistence, yielding strips six to eight lines in length at the beginning, near the termination strips a little shorter, without change of colour; agglomerated glands not much developed, every where of a natural dotted blue colour; isolated follicles elevated near the valve, a large number in the duodenum; mesenteric glands augmented in size, containing tuberculous matter. Large intestine containing soft fecal matter; presenting some arborizations formed by the larger vessels in the cœcum and ascending colon; but the mucous coat is every where of pretty good consistence, yielding strips eight to twelve lines in length; isolated follicles not much developed. Liver rather voluminous, greasing the scalpel a little, of yellowish-red colour, containing some crude tubercles in its parenchyma and beneath the membrane; bile green, moderately abundant. Kidneys and bladder firm, sound.

The child was tuberculous, and in a much greater degree than the preceding cases; tubercles existed in the lungs, spleen, liver and mesenteric glands; the state of the bronchial glands is not mentioned in any notes, but they were undoubtedly tuberculous. I have not met with a single instance in which tubercles existed in more than one organ, without finding them in the bronchial glands, and not unfrequently as is seen in these observations, they are the only organ affected. The granulations at the base of the brain seem a lesion of too little importance to explain the symptoms, but as the object at present is anatomical classification for the conveyance of study, rather than the comparison of the symptoms with the lesions, I have concluded to

place this case in the first category. Besides we know too little of the value of lesions to mark out with rigour the distinction between the important and trivial, we must content ourselves with what exists, and afterwards seek the interpretation of facts. The symptoms were less characteristic than in some of the preceding cases, but sufficiently so to be classed amongst those of cerebral affections.

Observation VII.—Trehlue Jean, æt. 6, entered 13th of March, 1833. Vaccinated; his father does not know if he had measles; never had eruptions or glandular swellings; masturbation habitual during an unknown period. In April, 1832, attacked with cholérine, which lasted two months, (diarrhœa;) since then subject to colds, frequent pains in the chest and epigastrium, but rarely diarrhœa; never recovered his flesh. In January last severe cough in fits, which were very violent and often attended with vomiting, apparently whooping-cough; he left school for a short time, but returned to it in the middle of the month; appetite good; no diarrhœa. Four weeks since, pain in the thorax and epigastrium which continues; within the last three days vomiting of glairy matter, and finally of bile. Two other children in good health; none dead.

Present state, March 14th, at 4 P. M.—Hair dark brown; eyes closed; face pale, a little swollen; lips rosy, but rather pale; emaciation moderate; expression of feebleness and indifference; answers brief, languid; decubitus dorsal, indifference as to sides or elevation; intelligence extremely obtuse; frontal cephalalgia; tongue pale, rose colour at the edges, moist and grayish at the centre, papillæ elevated; abdomen yielding, seems tender on pressure; neither asks for food nor drink; pulse 104, small, quick; skin hot and dry; percussion and auscultation imperfectly practised, no rhonchus heard. Gum water; gum linctus with syrup of poppies, ʒij.; milk.

15th. No vomiting nor dejections since his entrance; stupor more marked; pulse rather more frequent. Same prescription.

16th. Same decubitus rather more abandoned; countenance rather more injected; stupor increased; aversion to all impressions; no coherent answers, except that he indicates in muttering that he has pain in the belly; pupils regular, contractile, but a little dilated; sensibility of surface natural, no rigidity; the hands offer an erythematous redness without much swelling, and not extending to the forearm; constipation; rarely asks for drink; tongue covered with mucus, brownish-red, dry and swollen; skin very hot and dry; abdomen retracted, yielding a slight pressure, especially at the epigastrium, causes grimaces indicative of pain; pulse 132, feeble and small; respi-

ration 20, irregular, sighing. Same prescription, with hot applications to the feet; diet.

17th. His father called to see him, but the child scarcely looked at him; same stupor, and profound indifference; eyes not altered; pulse and respiration as yesterday. Same prescription, without the opiate.

18th. Cheeks more highly coloured; lips rather pale; eyelids half opened; nostrils a little dilated; mouth not distorted; tongue covered with brownish mucus; teeth fuliginous; respiration irregular, high, 16; pulse 136, small, quick, regular; answers more distinct; he refers the pain to the abdomen, which is retracted and yielding; no typhoid spots; sensibility natural, no rigidity; skin hot and dry; constipation; percussion very sonorous on the left side; respiration very expansive, vesicular, strong, without expiration; on the right a little more feeble generally; in the superior half of the lung both before and behind the inspiration is feeble, less vesicular than on the left, and followed by a distinct expiratory sound; resonance of the voice impossible to examine.

19th. Same countenance and stupor; teeth fuliginous; tongue cleaning; constipation; some dry mucous rhonchus, (*craquement*,) on the right side of the chest. Gum water; gargle with solution of chloride of lime; sinapisms to legs; chicken water.

20th. A natural alvine dejection; same state of cerebral faculties; feebleness extreme; tongue dry and red; sensibility of abdomen persists; diarrhœa in the night, and death the 21st at 9 A. M.

Autopsy 22d, twenty-four hours after death.—Exterior. Emaciation advanced; no lividity or infiltration.

Head. No blood on the exterior of the dura mater; small coagulum in the longitudinal sinus. Arachnoid dry, adhering rather closely to the convolutions. On the inferior and middle part of the left hemisphere, beginning an inch from the median fissure, we observed a yellowish patch of irregular extent formed by a light yellow substance infiltrated beneath the arachnoid, of the thickness of one to two or three lines, adhering strongly to the cortical substance, and as it were infiltrated into its tissue; the cerebral substance beneath it, both medullary and cortical, but especially the latter, are softened to such a degree as to be crushed beneath the scalpel instead of yielding a smooth incision; the softened medullary portion has a yellowish tinge. In the vicinity of this substance are a number of little, hard, yellowish granulations adhering to the arachnoid, detached in raising it up, and seemingly deposited in its substance or immediately beneath it.

The same kind of granulations are found in the midst of the yellowish matter, but are still distinct and harder, resembling the yellow tubercles formed in the midst of gray infiltration into the lungs. The whole left fossa of Sylvius is filled with this same yellowish and greenish substance, which unites the edges of the fossa together, and extend to a little distance on each side of it, and containing the same kind of granulations; the contiguous arachnoid around the commissure of the optic nerves and the pons varolii is a little thickened. On the superior part of the right hemisphere, as well as in the fossa of Sylvius, numerous granulations, and with some little patches of the amorphous yellow substance, accompany the vessels, but adhere less to the brain. Pia mater generally more injected than usual. Cortical substance pale-gray. Medullary not dotted with blood; consistence good, excepting in the part described; septum lucidum and fornix firm, white; a spoonful, ℥iij. to ℥iv., of serosity in each lateral ventricle; very little serosity at the base. Cerebellum, pons varolii, and medulla oblongata, firm, not injected. Spinal marrow firm, not injected; a little serosity beneath the arachnoid.

Thorax. Lungs non-adherent; some tubercles found beneath each pleura. The upper lobe of the right lung towards its posterior part contains an opaque, hard tubercle of the size of a filbert; around it are several small, opaque tubercles, and a small empty cavity of the size of a pea; parenchyma not hepatized, but reddish, and containing much spumous serosity; the lower lobes, as well as the whole of the lung, offer numerous opaque tubercles scattered through a crepitant, sound tissue. Bronchial glands tuberculous. Larynx, pharynx, and trachea pale, not ulcerated: bronchi rosy.

Abdomen. Stomach, internally of a grayish-rose colour; of good consistence; strips of the usual length, a little mammillated around the pylorus; the mucous membrane presented seven ulcerations, four of them on the anterior face, the other on the posterior and in the small curvature; they are rounded, a line or two in diameter, with elevated edges, pale, bottom formed by the cellular tissue. Small intestine pale throughout, offering four or five little ulcerations of the isolated follicles, and one seated in a gland of Peyer. Mesenteric ganglia tuberculous, hard, yellowish. Large intestine, rosy internally, few follicles visible, consistence good. Liver voluminous, a little fatty, of a pale-yellow colour; the upper and lower surfaces offering a great number of tubercles, which are also numerous in the peritoneum lining the diaphragm—not observed in the liver. Spleen four inches long, firm, dark colour, literally filled with opaque tubercles, the largest of the size of large peas. Kidneys and bladder not noted.

The subject of the present observation presented *tuberculous* deposit in a large number of organs; in the brain the small granulations, which were harder and more rounded than those usually met with, were intermixed with a sort of plastic fibrinous substance apparently intermediary between the pseudo-membranes so often noted beneath the arachnoid and real tuberculous matter: was it really tuberculous, or are the yellowish-gray granulations analogous to those found in the lungs, and is the amorphous substance of the same nature as the deposits usually found in the cerebral diseases of childhood? The case must be compared with others in my possession, which will be published in the following number, and in which the meningitis was still more unquestionably tuberculous. The reader is probably struck in looking over these cases with the intimate connexion between these affections and tuberculous disease; he must, besides, remember that the cases which are given in this number are those offering the most unequivocal anatomical lesions without the presence of well-marked tuberculous or cancerous deposits of sufficient importance to render probable their immediate connexion with the symptoms.

Observation VIII.—Margotin Antoinette, æt. 8, entered the 17th of March, 1833. (Service of M. BAUDELOCQUE.) Details communicated by her mother, a woman of little intelligence. The child was nursed in the country, returned to Paris at the age of three years; has never had enlargement of the glands of the neck, nor convulsions, nor worms, nor habitual pains in the abdomen; never received blows on the head; always subject to an eruptive disease of the scalp, which has gradually diminished lately, had measles at the age of two years, and small-pox in September last, since that time health not perfectly recovered; frequent head-ache, returning every two or three days; diarrhœa from time to time, lasting about two or three days, and then ceasing; appetite great. In the middle of February somnolence with augmentation of the head-ache; anorexia within the eight days previously to admission, and constipation; on the 12th vomiting of the tisane given her, renewed every day since; no delirium, but cephalalgia constant.

Of six children one died at the age of eleven years of croup, the others are in good health, and have never had convulsions; the father died in the last summer of a cerebral disease, (diagnostic of the physician,) after an illness of one day—symptoms not recollected. Mother in good health.

Present state, March 17th, 1833.—Hair and eyes dark-coloured; skin brown; embonpoint moderate; no cicatrices on the neck; decubitus variable; face generally but moderately coloured; lips red, rather

dry, of middle size; eyes hollow, not injected, pupils contractile, eyelids half open; forehead slightly contracted; frontal cephalalgia, at times she applies her hand to the forehead as if from sudden increase of pain; mouth and tongue not deviated; nostrils not dilated; answers short, languid, but correct; says she could eat in reply to a question, but neither asks for food nor drink; sensibility and motion natural; somnolence alternating with agitation, from time to time she moves her arms and seems in a state of constant agitation; pulse very irregular, rather feeble, 68; respiration irregular, high, 12 per minute, at times stertorous; skin rather dry, not particularly hot; tongue moist, rosy at the edges, whitish at the centre, easily protruded; neither vomiting nor stools; urine rare; abdomen yielding, not tender; no typhoid spots or sudamina; percussion sonorous; a little mucous rhonchus in the large bronchia. Calomel, gr. xij.; purgative enema; eight leeches to anus; sinapisms to legs.

18th, 9 A. M. Pupils less contractile, the right a little dilated, strabismus moderate, eyes little sensible to the light; jaws strongly closed, impossible to open them; head inclined backwards; rigidity of muscles of back of neck; no rigidity of the limbs; sensibility a little diminished on the left side of the body; mouth seems a little drawn towards the right side; no grinding of the teeth; no answers, seems not to hear the questions; deglutition easy yesterday, now very difficult; agitation and moans during the night, these moans have the acute tone attributed to hydrocephalus; heat elevated, dry; no vomiting, two dejections after the enema; abdomen yielding, not tender; pulse 140, full, regular; respiration 45, precipitated. Repeat the calomel, gr. xij.; purgative enema; two blisters to the arms; sinapisms to lower extremities; seton to the neck.

19th, 4 P. M. Decubitus abandoned; complaints more rare; face a little livid; less contraction of the forehead; nostrils in motion; mouth still a little drawn to the right; pupils equal, contractile; sensibility a little diminished on the left side, with slight rigidity of the articulations of both arm and leg; same stupor, but rather less unmeaning expression; questions seems to be understood, but she replies with great reluctance—points to her forehead as painful, instead of speaking; sight preserved; occasionally grinding of the teeth; deglutition easy; heat elevated at the head but not in the extremities; pulse irregular, feeble, 120; respiration high, very irregular, 36; mucous rhonchus in both sides of the chest, especially in the upper parts of the lungs; no vomiting or dejections; urine twice, voluntary; abdomen yielding, not tender. Tisane; hot applications to legs.

20th. Pupils as yesterday, strabismus; face injected; understands

questions; complains of her head; less rigidity of the neck, none of the extremities; pulse 126; respiration 40, very high and irregular; abundant mucous rhonchus at the summit of the left lung; heat of skin moderate; one dejection; urine three times. Frictions with mercurial ointment; ox. antim. alb. ℥ss.; purgative enema; sinapisms.

21st. No rigidity; mouth a little more deviated than yesterday; replies, but with difficulty; still complains of her head; face rather more livid; senses as yesterday; mouth drawn more aside; cough rare, loose; pulse 160; respiration 40; abundant mucous rhonchus in the right lung generally, a little in the posterior part of the left; a stool before administering the enema, another after it; urine three times. Oxyd antimon, ℥ss.; mercurial frictions; purgative enema; sinapisms; infus. altheæ.

22d. Mouth less drawn aside; speech still embarrassed; tongue slightly deviated towards the left side; lividity of the face; complains less of his head; sensibility less on the left; respiration abdominal, high, 40; pulse feeble, small, 150; cough not very frequent. In the superior two-thirds of the posterior part of the right lung abundant crepitus and bronchial tubal respiration; one dejection after the enema.

Death the 23d.

Autopsy 24th, thirty hours after death.—Exterior not noted.

Head.—The great cavity of the arachnoid contains about a large spoonful of transparent serosity. The large and small vessels of the pia mater are much injected; convolutions depressed; the anfractuositities nearly obliterated at the upper part of the brain. The fissure separating the two hemispheres of the cerebrum at their anterior adheres closely together, so that the cortical substance is torn in separating the two hemispheres. The left fossa of Sylvius presents nothing remarkable; the right presents a number of whitish-yellow lenticular points of the size of millet seeds, of the same aspect as those found in the subjects of the preceding observations; the pia mater can be easily detached from the surface of the convolutions, and remove at the same time the granulations which adhere closely to it. At the base of the brain in general, and especially the commissure of the optic nerves, the arachnoid is injected, but not evidently thickened, and without trace of purulent or tuberculous infiltration. Ventricles not dilated, containing from one to two tea-spoonfuls of serosity. The cortical substance generally is more injected than in the majority of subjects; medullary much dotted with blood. Brain in general rather flaccid, but not evidently softened; consistence of the fornix and septum lucidum good. The membranes covering the cerebellum offer the same injection as elsewhere; its substance contains numerous

vessels, and is of good consistence. Pons varolii and medulla oblongata firm, not injected. Medulla spinalis of natural whiteness and consistence; membranes a little injected.

Thorax. Right lung adheres posteriorly; upper lobe rose-fawn colour generally, a little violet posteriorly; tissue in the anterior third is rosy, containing an abundance of spumous serosity; the posterior half and an isolated mass the size of a hazelnut in the middle portion is of a reddish-violet colour, with scattered yellowish points more prominent than the rest of the mass, (points probably caused by small portions of the parenchyma not hepatized,) very friable, not floating, containing no air; the pulmonary vessels are still visible in this portion. The middle lobe offers the same aspect as the anterior part of the upper. Inferior lobe every where reddish-brown externally, excepting the anterior border; tissue violet-red, with the same yellowish points as in the upper lobe, granulated, very friable, a slight pressure reducing it into a reddish pulp; in the upper part of the lobe, near its posterior border, I found a cavity of the size of an almond, containing a reddish-yellow liquid, not lined by a false membrane, the walls of it formed by the pulmonary tissue itself, some remains of which float in the cavity in the form of cellular filaments; this cavity offers no apparent communication with the bronchia. No traces of tubercles in the lung. Bronchia a little reddish in the upper lobe generally, of an intensely red colour in the hepatized part. In the lower they are compressed and flattened, but easily followed to their extreme ramifications, of a deep red colour, containing much yellowish mucus.—Left lung. Lobe superior externally of a light fawn-rose colour; some lobules at its anterior part are more prominent than elsewhere; the pulmonary vesicles are in this part distinctly seen, but not greatly dilated: a dozen transparent gray granulations are scattered beneath the pleura, they are hard and prominent, (tuberculous.) Tissue rosy, soft, containing much spumous serosity without tubercles or other granulations. Lower lobe soft, rosy, containing a little spumous serosity; posterior part reddish-violet, friable, containing no air, of the same aspect as the hepatized part of the right lung. Bronchia reddish, especially in the inferior lobe. Bronchial glands in part converted into tuberculous matter, the largest of the size of a large filbert; the other glands are of a dull-white, rather soft.—Heart. Left ventricle three lines in thickness at the middle; right, one line; internal membrane pale.

Abdomen.—Stomach middle size, containing a whitish matter. Mucous membrane generally of an opaque-white tint. In the great tuberosity the membrane has the same dull-white colour, is much

thinner than natural; some large veins are still visible beneath it, but the membrane although softened is more easily detached than usual, and yields strips five or six lines long: in the small curvature we found a few partial depressions, whose edges were a little elevated, rosy, the mucous membrane not entirely destroyed: in the middle of the posterior face the mucous membrane in the diameter of more than two inches is yellow, traversed by numerous small bright-red arborizations: mammillation in the two or three inches nearest the pylorus; consistence of the membrane normal, strips eighteen lines long in the small curvature. Duodenum contains numerous follicles, tinged by the greenish matter contained.—Small intestine. Rosy externally, containing a yellowish liquid; mucous membrane generally rosy—at the beginning of the jejunum it is red in an extent of three or four inches, the redness is bright and dotted; strips of the mucous membrane six or seven lines in the jejunum generally, rather less in the part that is reddened. Mucous membrane of the ileum rosy irregularly, covered with adhesive mucus; membrane a little softened, yielding strips only three or four lines long; the injection is more marked in approaching the valve. Isolated follicles numerous and prominent in the whole length of the ileum, at first red and prominent without evident connexion with the colour of the surrounding membrane; near the valve the follicles are yellowish-white at their centre, and are covered by a yellowish mucosity more adherent than elsewhere, and apparently a secretion from the membrane: two of the isolated follicles two feet from the ileum are ulcerated, the ulcerations rounded, edges elevated and reddish, bottom grayish, formed by the mucous membrane incompletely destroyed. Agglomerated follicles, (Peyer,) reticular, pale, not reddened nor thickened. Mesenteric glands small, pale-violet, not tuberculous.—Large intestine. Not distended, containing some greenish fecal matter; cœcum and ascending colon rosy, with some arborizations; mucous membrane firm, strips eighteen or twenty lines in length. Transverse colon pale, presenting a reddish patch a few lines in diameter: the rest of the intestine is pale, consistence every where excellent; follicles in the cœcum little developed, nearly invisible in the rest of the intestine. Liver middle size, yellow externally and internally; two substances distinct—greasing the scalpel a little. Gall-bladder moderately distended by a liquid greenish bile. Spleen four inches long, bluish externally, brownish-red internally, firm. Kidneys pale, firm. Bladder pale.

The child was feeble, *tuberculous*, as the autopsy proved; the cerebral symptoms were, however, not intense, and had notably dimi-

nished when the pneumonia supervened, and was the immediate cause of death. The cerebral lesions were slight, some may ask were they real, it is useless at present to discuss a question which can be completely resolved by comparing the facts; at present it may be well to mention that these granulations are peculiar to cerebral affections: I speak from memory, but the fact will be reconsidered. The abdominal lesions consisted in the softening of the mucous membrane of the stomach and the inflammation of the small intestine, especially the isolated follicles: the agglomerated follicles were sound, a fact which seem to prove the little connexion between their affections and those of the rest of the intestine. The large intestine, contrary to the more common rule, was not diseased.

Observation IX.—Landras Sophie, æt. 6½, entered the 2d February, 1833. (Service of M. Baudelocque.) Born at Paris, inhabiting one of the dirtiest and worst ventilated quarters, (cité;) vaccinated; has not had measles; her father thinks she has not had hooping-cough; subject to an eruption of the scalp, which disappeared within the last six weeks, after the application of an empirical ointment. The glands of the neck are augmented in size since the age of two or three years; not stated if chronic ophthalmia existed; a blister on the arm which had been kept open during the last two years has been allowed to heal since the disappearance of the cutaneous affection; ten days before admission anorexia without vomiting; complains of pain in the abdomen and head; convulsions repeated several times, marked by strong spasmodic movements of the face and limbs; no delirium nor cough; constipation; these symptoms persist notwithstanding an application of leeches behind the ears; has never had convulsions in infancy; lodges in a damp room on the ground floor; six persons sleeping in the same room; four children, the eldest eleven years old, three of them are girls, the others have neither had convulsions, nor enlargement of the glands nor eruptive diseases; details obtained from her father, whose intellect is too obtuse to render them certain.

Present state, February 3d, 1833.—Hair and eyes black; a little emaciation; face pale, a little yellowish; lips thick, pale violet; decubitus dorsal, abandoned; eyes hollow, surrounded with a dark circle; strabismus; pupils a little dilated, irregular, especially the right; mouth not distorted; nostrils contracted; from time to time abrupt spasmodic contractions of an isolated muscle of the face, (more frequent an hour or two since,) tongue easily protruded, not deviated; no rigidity of the limbs; sensibility of the surface generally augmented, rather than diminished; stupor constant, almost coma, aversion to all excitement or motion, but not ill humour; frequent sighs, with

feeble plaintive moans; incoherent muttering; answers brief, but correct; says she has pain in the head and abdomen, pointing to the umbilicus; no subsultus tendinum or floccilation; within the last two hours she frequently asks for drink; deglutition easy; no convulsions; tongue swollen, depressions in its edges corresponding to the teeth, grayish, moist; abdomen yielding, not distended; no dejections; neither sudamina nor petechiæ; pulse small, quick, 136; respiration sighing, 24; cough rare, loose; respiration ausculted anteriorly, pure; skin hot and dry. Warm bath at 9 A. M. and another at 5 P. M. with cold affusion on the head; vinegar poultices to feet; inf. tigliæ for drink; purgative enema.

4th, 8 A. M. Same appearance of the eyes; hands constantly applied to the head; forehead contracted; stupor increased; no longer asks for drink; no answers; muttering occasionally; night agitated, but without cries; motion and sensibility natural; respiration high, irregular, 16; pulse 124, small, feeble, regular; large evacuation after the enema; urine reddish, voluntary; repeat the baths, with cold affusion; inf. tigliæ; hot poultices to the feet.

5th, 4 P. M. Face more injected than in the morning; same decubitus, hands applied to the head; answers better than yesterday; features not distorted; pupils still moderately dilated, strabismus; frequent moans, but no cries; no convulsions observed by the nurses; no rigidity; sensibility and movement natural; still says she has pain in the head; subsultus tendinum very frequent at the wrist; does not ask for drink, but swallows easily and with avidity when the cup is put to her lips; pulse 130, quick, always regular; respiration irregular, sighing, 16; no cough; skin hot and dry; tongue moist, grayish, deviation towards the left side, doubtful; voice feeble, sighing; abdomen yielding, she gives no evidence of pain on touching it. Repeat the baths and hot applications.

Death the 6th at noon. The persons who saw her in the morning remarked no change.

Autopsy the 7th, twenty-two hours after death.—Emaciation not advanced; no lividity or rigidity; not infiltrated.

Head. Very little blood on the exterior of the dura mater; longitudinal sinus empty; arachnoid on the convexity of the brain perfectly dry, no effusion beneath it; surface of the brain smooth and uniform; anfractuosities almost totally obliterated; pia mater not injected, easily detached from the cortical substance; fluctuation of a deep-seated liquid manifest; no granulations or patches of false membrane beneath the arachnoid. The fluctuation was caused by about three ounces of limpid serosity accumulated in the lateral ventricles; fora-

men of Monro is much dilated, rounded, nearly three lines in diameter; fornix and septum lucidum soft, torn by a slight effort, but not diffuent. Corpora striata and optic thalami firm, not injected; cortical substance of the convolutions pale gray, slightly orange coloured, rather paler on the right than the left side; consistence throughout perfectly good; cerebellum equally pale as the cerebrum, not injected; near its superior face a little to the right of the middle, is a tubercle four or five lines in diameter, rounded, of a dull yellowish-white, contained in a thin but hard semicartilaginous cyst, from which it can be easily detached; the surrounding cerebral substance is neither injected nor softened. Arachnoid at the base of the brain a little milky, but contains little serosity; no traces of granulations in any part, or purulent infiltration. Spinal marrow of a light yellow or orange tint, not injected; consistence good. Larynx and trachea pale, not ulcerated. Œsophagus and pharynx same state.

Thorax. Right lung not adherent; pleura containing an ounce to an ounce and a half of serosity; upper lobe rosy, fawn colour anteriorly, violet posteriorly; in the anterior part the lobes are irregularly prominent, and vesicles a little dilated; tissue spongy, soft, containing much spumous serosity, but neither induration nor tubercles. Middle lobe same aspect, and equally sound as the upper; lower lobe a little reddish posteriorly, soft, a little more engorged than the upper lobes, but every where permeable to the air; no tubercles; bronchi very pale; left lung non-adherent, a little serosity in the pleura; upper lobe rosy, presenting along its anterior portion vesicles of the size of grains of sand, as in the right lung; perfectly permeable, without tubercles, but contain much spumous serosity; lower lobe similar to the lower lobe of the right lung, but also containing some nodules, dark red, not granulated, hard. Bronchi as in the right. Bronchial glands grayish, small, not tuberculous; but one near the right bronchus contains a little cretaceous matter; another of the size of a large pea is entirely converted into this substance. Pericardium contains but little serosity; heart a little larger than the fist of the subject; fibrous coagula in both cavities, larger in the right than the left; thickness of the left ventricle two lines and a half, of the right a little less than a line; large vessels pale.

Abdomen. Stomach of middle size, containing much mucus, adhering strongly to the internal coat. The great tuberosity and cardiac half of the large curvature present an irregular thinning of the mucous membrane, in a patch three inches in diameter; colour pale, and in some parts the membrane scarcely exists, rendering the muscular fibres very evident; a few large vessels not dis-

tended with blood are visible beneath the membrane. No vivid injection, general aspect reddish-gray, (onion-peel;) consistence much diminished in the part that is thinnest, strips three lines, in the rest of the large curvature they are eight or ten lines long, and more than an inch in the small; mammillation not evident.—*Small intestine* not distended, containing a yellowish, moderately abundant mucus. Duodenum rosy, isolated follicles abundant, of the size of mustard seeds; some of them with central points. Intestine in the upper retains the rosy colour, is of a villous appearance, but contains few isolated follicles; pale afterwards, with no injection, of normal consistence, strips at first six or eight lines, a little larger in the ileum; a few isolated follicles were found in the last two feet. Agglomerated glands of Peyer begin in the upper third, forty of them were found, of a dull white colour, little elevated, (normal.) Mesenteric glands small, pale, gray, firm.—*Large intestine* not distended, containing soft fecal matter. Cœcum pale, but offering a few vascular ramifications, in the rest of its extent the intestine is pale gray; the consistence every where perfect, strips of the membrane varying from eighteen lines to two inches; thickness normal, increasing in approaching the rectum; follicles prominent, of the size of pin's heads, marked with a grayish central point.—*Liver* smaller than usual, containing little blood; substance brownish-red, firm; the two substances not distinct, firm. Gall-bladder small, containing a brownish-yellow bile.—*Spleen* two inches and a half long, reddish, firm, without tubercles.—*Kidneys* firm, a little livid.—*Bladder* moderately distended, pale, firm.

The antecedents of this case are defective, we know only that the child was ill lodged, belonging to the poorest class, and of course miserably fed; that she had had chronic enlargement of the glands of the neck. The commencement of the present affections was fixed by her parents at a very recent date. The cerebral lesions consisted chiefly in the effusion of limpid serosity into the ventricles, and dryness and adherence of the arachnoid at the surface. The stomach presented the partial thinness of the mucous membrane so often met with; the other viscera nothing remarkable. The subject was also affected with *tuberculous* disease; a tubercle was found in the cerebellum, and two of the bronchial glands contained cretaceous matter, the cervical ganglia were unfortunately not examined. The coincidence of the disappearance of the external signs of scrofula, and the existence of cretaceous matter in two of the bronchial glands, seem to prove in this as in one of the preceding cases, that this substance is a form of one of tuberculous depositions.

Observation X.—Fortin Jean, æt. 4, entered the 4th of October, 1832. (Service of M. Bonneau.) Health generally feeble; character sad, morose; head large. On the 26th of September he complained of violent cephalalgia; skin hot; thirst; anorexia; agitation at night; vomiting at the beginning; stools liquid, not numerous; continued going to school, and did not keep his bed a single day.

Present state, October 4th, 1832.—Hair brown; skin dark-coloured; no œdema; head large; eyes closed, not injected; pupils contractile; answers slow, intelligence obtuse, but he is still able to refer the pain to his head; features not distorted; sensibility and motion natural; tongue moist, rosy; thirst moderate; abdomen developed, but yielding; the convolutions of the intestines easily felt; pressure not painful; skin hot and dry; pulse small, feeble, 104.

5th. Stupor increased; calm during the night; pupils contractile, not dilated. In the afternoon the coma was still more profound; countenance altered; pupils irregularly dilated; mouth covered with foam; jaws closed; at times grinding of the teeth; relaxation of the muscles, sensibility almost wanting; skin not so hot; abdomen yielding, but pressure upon it causes grimaces apparently from pain; pulse feeble, quick, 120; constipation. Prescription of the morning; two leeches behind each ear, and two to the arms; vinegar poultices to feet; oil mixture; tisane.

6th. Decubitus more abandoned; same colour of the skin; strabismus marked; coma profound; jaws strongly closed. At times spasmodic contractions of the muscles of the face; paralysis of sensibility and motion complete on the left side, partial on the right; pupils dilated, especially the left; pulse 160, small, quick; abundant liquid stools; abdomen retracted, not tender; cough frequent; mucous and sonorous rhonchus at the base of the lungs. Blisters to thighs and back of neck, with ammoniacal cerate; enema with camphor, gr. iij.

7th. Coma persists; slight rigidity of the left arm; sensibility seems more perfectly extinct on the right than the left side; heart elevated; pulse feeble, irregular, 160 to 180; several liquid discharges; the region of the occiput was vesicated by a compress dipped in boiling water; a slight motion of the body was the only sign of pain manifested; symptoms not changed during the day; at 5 P. M. cold clammy sweat over the whole body; slight convulsive movements of the face and limbs.

Death at 9 P. M.

Autopsy the 8th, twelve hours after death.—Emaciation advanced; livid marks upon the parts touched with hot water.

Head. Little blood exterior to the dura mater; fibrinous coagulum

in the sinus. Arachnoid moist; serosity beneath it more abundant than usual, especially on the right side, where it causes a semi-opacity of the arachnoid. Pia mater a little injected, easily detached from the cortical substance, which is redder than usual. Medullary rather dotted with blood; consistence perfectly natural. Ventricles extremely distended in approaching them, fluctuation very evident. In the two the total quantity of serosity was not less than six or seven ounces; it was perfectly limpid, and was almost entirely evacuated upon opening the ventricle on one side. Foramen of Monro two or three times its usual size; the septum lucidum and fornix were rather softer than usual, but not pultaceous; parietes of the ventricles not at all injected. Corpora striata and thalami firm.—Base. The arachnoid around the commissure of the optic nerves is thickened, opaque and yellowish, resisting the scalpel: the same yellowish tint, but without evident thickening, extends to all that part of the arachnoid bounded laterally by the olfactory nerves. Upon the superior part of the right hemisphere of the cerebellum there is a patch some lines in breadth, formed by the deposit beneath the arachnoid, of the same yellow opaque substance found at the base of the brain. The meninges elsewhere are neither thickened nor injected.

Larynx pale, not ulcerated. Pharynx idem. Right pleura generally adherent; left free; numerous tuberculous granulations beneath the right pleura. Right lung posteriorly much engorged, especially in the lower lobe, which still contained air, but was filled with reddish serosity; upper and middle lobes rosy-fawn colour, reddish posteriorly, but light, perfectly permeable to the air. Bronchi pale, not thickened. Left lung in its superior lobe less red than the right, but equally soft and spongy. Inferior lobe rosy anteriorly, reddish posteriorly, presenting an induration in the middle of the posterior part, the tissue of which is smooth, brownish, and resists strongly on pressure. Bronchi pale; no tubercles found in the lungs. Bronchial glands not tuberculous. Pericardium nearly without serosity. Large fibrinous coagulum in the right side of the heart; left nearly empty; tissue of heart firm.

Abdomen. Stomach contains only a little adherent mucus. Mucous coat of a reddish-yellow, onion-peel tint, generally with some dotted red patches scattered throughout its whole extent; thickness, but membrane generally softened, strips one line long in the great cul-de-sac, two or three in the great curvature, and about four in the small. Small intestine containing a yellowish, moderately abundant matter. In the upper half the membrane is grayish, tinged by the bile without arborizations, but softened, yielding strips only two or three

lines long—in the lower half about a line longer. A few isolated glands were developed at a few feet from the valve. Three of the agglomerated glands, (Peyer,) at two or three feet from the valve, were red and swollen; two of them are ulcerated, the ulceration on one is rounded with perpendicular edges, the second offers two ulcerations a line and a half in diameter, separated by a half-destroyed band; the redness of the bottom and edges is the same as that of the rest of the gland; the mucous membrane is entirely destroyed. The mesenteric glands corresponding to the ulceration are reddened, doubled or tripled in size, but not evidently softened. Larger intestine contains fecal matter without intense redness, offering a few scattered vessels, not thickened, but a little softened; strips one-half shorter than usual. Liver of a brownish colour, firm—the two substances not distinct. Spleen of middle size and firm. Kidneys sound.

Remarks.—This case offers some analogy with the preceding; the subject was apparently affected with chronic hydrocephalus, and was afterwards taken with the acute affection characterized by the effusion of the yellowish substance. The lymphatic glands were not tuberculous, but gray granulations were numerous beneath the right pleura. A singular complication in this case was the ulceration of the glands of Peyer, ulceration in children not absolutely peculiar to typhoid fever or tuberculous affections.

ART. IV. *On the Communicability of Cholera.* By S. HENRY DICKSON, M. D. Professor of the Institutes and Practice of Medicine in the Medical College of the State of South Carolina.

A VERY decided majority of the physicians of our country who have published notices of this justly dreaded pestilence, have agreed in denying to it the property of contagiousness. Nay, some among us as well as in Great Britain have gone so far as to arraign the ancient regulations of quarantine and sanitary cordons as useless, cruel and absurd, and to advocate their total abandonment. It must be allowed that these restrictions upon the freedom of trade, and the open intercourse so advantageous to all nations are inconvenient, and in a certain degree injurious and oppressive; but it behoves us to discuss the subject with the most deliberate impartiality before we assume the high responsibility of advising their entire abrogation.

No argument will, I presume, be required to prove the absolute

right of every community to protect itself by whatever measures may be necessary against the introduction of diseases susceptible of transmission through the ordinary channels of social and commercial intercourse. On the other hand it is equally admitted that to justify any government in the institution of such measures, a clear case must be made out, and positive evidence adduced of the communicability of a disease which may have been included in the limit of restrictions and prohibitions. I prefer to employ here the word communicable, in order to avoid for the present, at least, entering into the nice and difficult distinctions between contagion and infection.

I propose to make some remarks on this important question in relation to Asiatic or malignant cholera, with the purpose of drawing the ultimate inference, that if this terrible malady is capable of transmission through the ordinary channels of commerce, all communities have the right, and it is their duty so to obstruct these channels that the extension of the evil may be prevented. In other words it is my intention to show that the quarantine system in its bearing upon the subject of this essay, is reasonable and useful, and ought not to be abandoned or even relaxed, though in the details of the particular arrangements established in different seaports, I may agree with those who find much to censure.

Let us imagine that a government urged by its medical advisers, or disposed to decide a warmly-contested dispute, were to select place and circumstance for a fair and guarded experiment by means of which to test the communicability of any form of pestilence. Could a better plan be suggested than that a vessel sailing from an infected city, and freighted with diseased subjects, should be stranded upon the shore of an almost barren and scarcely inhabited island, where her fated crew should be met by a deputation chosen from the several classes of the population of a healthy town at a safe and convenient distance. Let us suppose that most of the very few residents of the island were attacked with the malady thus imported and previously unknown there, and that a considerable proportion of those sent from the neighbouring town were also seized in the same manner, and that such only as had thus held intercourse with the vessel and her crew, were throughout that whole region of country affected with the novel and well-marked disease alluded to. Would it not now be acknowledged that all doubt was at an end, all further argument unnecessary, and the question settled forever as to the possibility of importing and transmitting the pestilence experimented on?

It is probable, indeed, that discussions would still be carried on as to the particular modes of such importation and transmission, whether

by contagion or infection and the like, but the doctrine of its capability of being communicated would be placed beyond all denial or doubt. Such I conceive to be the fact in regard to cholera. An experiment has been tried very nearly, I think I may affirm precisely, such as I have just indicated, and I proceed to give the details, premising that I have drawn the following statement from the most authentic documents; the reports, namely, of the physicians named below, and the letters and other papers in possession of the city council of Charleston. The occurrences here recorded took place last autumn. It has been my intention from the first, to publish them to the profession, but I delayed writing in the expectation that our city like most others on this wide continent would suffer the ravages of the epidemic, and that opportunity would thus be afforded me of making further observations upon it. Nothing of this kind, thank God, has yet happened; and we are now indulging the uncertain and fearful hope that we may escape it altogether.

On the 31st of October, 1832, the brig *Amelia*, bound to New Orleans, after a tedious and stormy passage from New York, having sailed on the 19th of the same month, was wrecked on the beach of a low and sandy island, about twenty miles from Charleston, far out to seaward, and offering a very scanty vegetation. It is regarded by its owner, Mr. Milne, as quite a healthy spot, and resorted to by him as an agreeable summer retreat—four of his negroes being left upon it as permanent occupiers.

The brig had on board besides her ordinary crew, one hundred and five passengers, one hundred and two of whom were crowded into the steerage. During the voyage which was wet and tempestuous, they were much confined below, and when six days out became sickly. Twenty-four died on the way, and several were ill when she was stranded. The survivors were treated with the greatest humanity by the owner of the island, and took refuge in his buildings. The captain and one of the passengers came up to town with Mr. M. and reported the affair to the municipal authorities, who promptly entered upon the measures dictated by a correct and liberal policy. The deputy port physician, Dr. Elfe, visited the island, and announced the nature of the disease existing there. A boat's crew of wreckers who had gone down to the spot to pursue their usual avocation of saving the vessel and cargo, having returned to the city, one of them was seized with cholera, and died in Elliott street under the care of Dr. SCHMIDT. His was the only case which I had an opportunity of seeing, and it appeared to me well-marked and clearly identical with descriptions now familiar to every one. The rest of the crew were

ordered to the island to perform quarantine, and having embarked, two fell sick, and one died of cholera on the passage down.

Two physicians, Drs. JEWELL and PRITCHARD, were in the meanwhile sent thither to afford the requisite medical attendance upon the sick; every thing necessary for their support and comfort being forthwith furnished as far as was in the power of our intendant and council, to whom all praise is due for their conduct on this occasion.

As neither the brig's crew and passengers, nor the wreckers, an additional number of whom had now gathered about the wreck under permission of the authorities, were willing to remain on the island under quarantine restrictions, eighteen men from the city guard, under the command of a lieutenant, were detailed to perform the duty of a cordon sanitaire in confining them there. These men were stationed between one hundred and two hundred yards from the sick, but in going to and from the landing they were forced to pass much nearer the building of one of the kitchens, which was used as a hospital; nor was it possible to prevent them from communicating with the passengers who were dispersed over the island. After the lapse of a week Dr. HUNT went down to relieve Drs. Pritchard and Jewell, who were worn out with continual and severe exertions. A reverend clergyman of the catholic church, Mr. Byrne, with the zeal and devotion of his sacred calling also visited the island, and remained to dispense the consolations of religion to the sick and dying. Now, let us see what was the result of this intercourse of a number of sound and healthy individuals within this infected vessel, and her diseased passengers and crew. Out of about one hundred and fifty persons collected on the island, twenty-three died, of whom twelve were passengers landed from the brig. Of the *wreckers*, the first to visit the vessel, and the most continually employed about her, some were almost immediately taken ill after their exposure; one died in town, one on the way to quarantine, and in all *eight*.

Of the *four* negroes on the island *three* died, one child and two adults. Of the guard employed on duty there, every man was affected more or less with the symptoms of cholera, with the exception of the commanding officer; nine were reported as attacked seriously, and *one* died; who, as Lieutenant Knights assures me, had never boarded the brig. Of the three physicians employed, Drs. Jewell and Pritchard escaped all suffering but that of extreme fatigue. Dr. Hunt reports himself on the 17th November as attacked by cholera, but quickly recovered.

I cannot help expressing here my sense of the merits of these medical gentlemen, whose humanity and ardour led them to renounce

the comforts and enjoyments of home, for an imprisonment on a dismal sand-bank, exposed to much privation, and to special hazard of sickness. Their conduct does honour to their profession, and to human nature.

Lastly, the nurse who accompanied Dr. Hunt was taken ill, and died. This man had been employed a week previous by Dr. Schmidt as a nurse to the only person who had the disease in the city. He had been assiduous in his attendance, and almost constantly engaged in the application of frictions until the patient died. Thus, there were *thirteen* deaths among the few who visited the island and the wreck.

Such as I have above stated are the simple facts; what are the reasonings and inferences fairly to be founded on them? I pass by all discussion of the *negative* circumstances of this remarkable case, as irrelevant to the question before us. The city of Charleston escaped without suffering the invasion of cholera, although the captain of the brig and a passenger came up to town and communicated with the authorities; although the deputy port physician returned home after visiting, examining, and prescribing for the patients; although the crew of a wrecking boat violated the laws, and returned also for a short time to their homes after boarding the stranded brig; although one of their number died in a very thickly-built part of the town; and although two or three of the individuals quarantined on Folly Island escaped to the main land.

I have no wish to subtract from the real weight and value of these circumstances. I rejoice to be led to the conclusion at which they clearly point, that like all other communicable diseases, cholera requires the concurrence of certain contingencies in order to give efficiency to its generating or exciting cause. Nothing is better understood than that some undefined condition is requisite to the transmission of every malady, whether regarded as contagious or infectious. The most universal of all epidemics, even influenza itself, does not affect every individual within the sphere of its prevalence. Small-pox is not always taken by the exposed subject; nay, inoculation often fails, however carefully performed, and with the most virulent matter; and I appeal to every physician of reading and experience if numerous instances of a similar nature have not come under his immediate cognizance. Thus, the man who died in Elliott street, though visited by numbers during his short illness of a few hours, was happily a cause of disease to no one, nor did those who evaded the imprisonment of quarantine spread it in any direction. We are entirely ignorant of the concurrent conditions essential to

the transmission of cholera, if it be transmissible; we know that they are not fulfilled in the above cases.

The *positive facts*, however, I repeat, are worthy of the most serious consideration on the part of all who are anxious to arrive at the truth. Cholera was unknown on our shores until the date of the unfortunate wreck of the brig *Amelia* on the beach of Folly Island. No local cause capable of originating such a disease is imagined to have existed on that island. Cholera prevailed at New York when the brig sailed from that port; the week before her departure fourteen deaths are recorded in the bill of mortality. Twenty-four of the passengers died of it on the voyage, and several were landed labouring under it. The first boat's crew of wreckers who boarded her were some of them attacked with the same pestilence which had prevailed at New York when she sailed, and of which her passengers had been ill and died. None of the other inhabitants of Charleston were seized in the same way, either at that time or afterwards; the conclusion is therefore irresistible, they received the infection from on board the brig.

The doctrine is now established beyond a reasonable doubt, that cholera is importable. It may be conveyed from one city to another by a vessel, or it may originate during an unfortunate voyage on board a vessel which shall not only disease her passengers, but infect persons who venture on board of her in perfect health on her arrival in port; in either case the vessel herself, or the atmosphere which she contains, shall be in a state capable of communicating the disease to those who visit her. Cholera is therefore clearly a proper subject for quarantine regulations, and these should be strict and perfectly effectual. Restrictions which are useful in their tendency, and necessary to an object, are in every sense justifiable; such only as are inefficient are wrong and oppressive.

It is of little consequence comparatively to inquire what was the cause of cholera on board the brig. She either left New York with a choleric atmosphere filling her hold and cabin, &c. or her passengers and crew were previously infected with cholera and ready to be diseased, or cholera was in some inexplicable manner generated within her during her stormy passage. If the latter, the process must have been very rapid indeed by which her confined atmosphere was contaminated in this peculiar way, for her captain deposed before council, that "the sickness commenced on the sixth day out."

I will not venture to deny the possibility of the spontaneous development of malignant cholera either in the steerage of a ship or in any other specified locality. Every thing must have a beginning—

cholera must have commenced either at Jessore, or at some other place or places, nay, there must have been a first and therefore spontaneous case of small-pox itself.

My principal object was to prove that cholera is communicable by or through a vessel containing sick patients or infected air. From the sufferings of the wreckers, as related above, it is reasonable to infer that if our municipal authorities had been so negligent of their duty as to have allowed the *Amelia* to have entered our harbour, (as the captain had intended,) and laid at one of our wharves, she would have been to our city, as to the desolate and distant island where she was stranded, a focus of pestilence, and spread throughout our terrified population disease and death.

But it would appear further, that not only the wreck of the brig, but the sick on the island were capable of communicating the disease to those who held intercourse with them. The wreck was burnt on the 8th of November; new cases of cholera continued to occur until the 17th, not only among those who had been on board of her, but in some who had never visited her.

Dr. Hunt reports himself as taken ill on the 17th; his nurse died on the tenth, never having boarded her. Of the *four* black residents on Mr. Milne's property three died, two adults and a child, of whom it is not known that they ever went on board of her. Of the eighteen guards nine were reported ill, and one died, of whom I have already mentioned that his officer assured me he had never visited the wreck. On the 19th of November the surviving passengers of the ill-fated vessel took passage on board the *Cicero* for a southern port, and the malignant disease disappeared from our shores, may we venture to hope, forever.

Let me observe that it is admitted by all, whether or not they acknowledge the contagiousness of cholera, that there were cases among those who had not exposed themselves to the vitiated atmosphere of the wrecked vessel. Dr. Jewey, in a note to me remarks, "during my stay on the island, those who were attacked were *generally* such as had visited the brig—there were however some exceptions." From Dr. Pritchard I have a similar statement. In the first report to council from Dr. Hunt, he says, "several of the inhabitants of the island have been attacked, and died without ever visiting the wrecked brig."

In explanation of these undenied facts, it has been suggested that the contaminated atmosphere of the vessel may have been wafted to the shore by favourable winds. This was possible perhaps before her destruction by fire—but how can we account for the cases which oc-

curred after that event which took place on the 8th. We have seen that new reports were made at least until the 17th.

It seems to me abundantly evident that we must attribute these at any rate, if not all such as occurred among those who staid ashore on the island, to mere intercourse with the *sick*. I will not say how—in what specific manner these unhappy individuals became the medium by which cholera was communicated to others previously in good health; whether by the generation of some impalpable but poisonous effluvium in their own persons, or by the mere conveyance of some portion of contaminated air. It suffices to know that approach to and contact with them were dangerous; that they must be regarded either as fomites or as generators of a contagious virus. Let me not be told then, that their seclusion and temporary confinement under quarantine regulations, are either unnecessary or oppressive. Such restrictions to be effectual in limiting the spread of pestilence must extend to *persons* as well as to *things*, and are not only justifiable but absolutely humane.

On the whole, I cannot but think that a strong case is made out in the preceding record. That cholera is *importable*, and was in this instance *imported*, is not to be denied; that the same thing may occur again and elsewhere, is equally clear, and all governments ought to be aware of the fact, and to institute and establish on a permanent basis the proper and necessary measures of prevention.

That cholera is *contagious* seems to me also to be proved by the above history, and this conclusion can only be evaded by taking shelter in the minute and interminable discussions as to the numberless distinctions suggested between contagion and infection. Such distinctions are however after all, rather etymological than practical, and ought by no means to be permitted to influence the decision of the great question of the propriety and necessity of quarantine regulations.

Charleston, October, 1833.

ART. V. *Cases of Deranged Menstruation, with Remarks*. By HARVEY LINDSLY, M. D. of Washington, D. C.

THERE is perhaps scarcely any disease to which the human frame is liable, that has attracted more attention, and the treatment of which at the same time is more unsatisfactory and unsettled than the one on which I now propose to make a few remarks.

From the earliest periods it has justly been considered one of the

“*opprobria medicinæ*,” and although it has since employed the talents, and occupied the attention of some of the ablest men our profession has produced, we are still far from having devised a sufficient and successful mode of treatment.

The two principal varieties of deranged menstruation, viz. amenorrhœa and dysmenorrhœa have always presented great and occasionally insurmountable obstacles to every plan of treatment however varied and well devised. And perhaps no stronger proof could be adduced of the inherent difficulty of managing these forms of disease, than the almost innumerable remedies and specifics, which have from time to time been recommended for their cure, and which after a more thorough trial have lain neglected and forgotten. Doubtless one cause of the discrepancy in the mode of treatment in these cases, as in many other instances in our profession, is the want of precision and accuracy in the description of diseases, and the still more unfortunate defect of observation and close attention on the part of too many practitioners of medicine.

No mistake is more dangerous and sometimes even fatal, and at the same time more common in our profession, than that made by the mere *routine* physician, of prescribing the same medicine, for what he considers the same disease in different patients, without scrutinizing and weighing those nicer shades and peculiarities of constitution and habits, which exert so great an influence in modifying disease; and which, with every judicious practitioner, exert an equal influence in regulating the treatment.

This principle is of peculiar importance to be kept in view in the management of deranged menstruation, for few diseases incident to the human frame, present a greater complication of mischief, or are more apt to be accompanied by general disorder of the system than the one of which we are speaking.

Every medical man must have noticed with pain and mortification, the frequent failure and great uncertainty of the ordinary means for relieving this source of pain and unhappiness to the female sex, when prescribed in the ordinary way. As the difficulty is often one of long standing, (for being attended at first with but little pain, it does not readily attract the attention or excite the fears of the patient,) before application is made for medical aid, is it not natural, that generally speaking, a long-continued and persevering administration of remedies should be required for its relief? And is not the failure so often witnessed of our remedial agents, rather to be attributed to the irregularity of their administration, and the shortness of the time during which they are given, than to any inherent want of efficacy in the

medicines themselves? If instead of continuing a course of medicine a few days, and then giving it up in despair, because it does not accomplish every thing we could wish, we should persevere in its use for weeks, and if necessary even for months, I am persuaded we should more frequently relieve our patients, and have less occasion to complain of the uncertain and variable effects of emmenagogue medicines. If this principle were steadily kept in view, perhaps we should find it of less importance than is generally imagined to make a selection among articles of this class, and probably many of them administered in this way, would be found to answer our purposes, which are now condemned as inert and useless.

So far as a decided opinion could be formed, from the few trials it has been in my power to make, I am inclined to prefer equal parts of aloes and myrrh, (generally premising venesection or calomel, should the state of the system require either or both,) a pill of which should be taken every night and morning, and continued if necessary two or three months. In cases of amenorrhœa I have invariably found this simple course sufficient to bring on the menstrual discharge, except in those hopeless instances, where the constitution is completely undermined, and where pulmonary phthisis or some other structural derangement is rapidly bearing the patient away.

The following cases are subjoined, not from any particular novelty in their symptoms or mode of treatment, but with a hope that they may possibly excite greater attention on the part of some of the profession to a train of maladies, which, in their immediate and remote consequences, are among the most distressing to which the female sex is exposed.

CASE I. The patient was a young lady, sixteen years of age, of rather a delicate constitution, and nervous temperament. When first called to see her, she had been labouring under amenorrhœa for five months. She was troubled with great difficulty of breathing; her general health was much impaired, spirits depressed, and indeed was so ill that her friends were almost despairing of her recovery. She had had medical aid, and had taken a good deal of medicine, but apparently without any benefit. As she had already been bled, and was much reduced by the depletion she had undergone, I commenced immediately with the aloes and myrrh:—℞. Aloes, Myrrh, āā. gr. xxx. Ft. pil. No. xv. Of which one was to be taken every night and morning. At the same time I directed her to take as much exercise as her strength would permit in the open air, both on horseback and in a carriage. After pursuing this course for three weeks, she had a regular menstruating period—her general health was restored, and she

has remained free from this difficulty ever since, although this occurred in 1829.

CASE II. On the 10th of February I was called to see E. D. an unmarried woman, aged thirty. Constitution naturally robust and hardy. She had had a suppression of menses for six months. Upon examination, I found a large ulcer on each leg near the ankle-joint. Her general health was much affected by this combination of disease; appetite bad; tongue furred, and whole system greatly debilitated. I directed fifteen grains of calomel with castor oil, and a charcoal poultice to each ulcer.

14th. Ulcers better, but in other respects little alteration. Ordered pills of aloes and myrrh as in Case I. I also directed two blue pills to be taken every day, and some local application to the sores.

20th. Mouth slightly affected. Discontinued blue pills; aloes and myrrh still given. Ulcers improving.

April 1st.—The pills have now been taken with regularity for nearly two months; menstrual discharge has come on in natural quantity; ulcers well, and general health restored.

CASE III. This patient had been married several years, and was the mother of three children. Had been afflicted with amenorrhœa five months. General health greatly impaired. I directed a dose of calomel, and the pills of aloes and myrrh as in the preceding cases, and succeeded in two weeks in bringing on the menstrual discharge.

Various other cases with the same general features might be added, but as they vary is no essential particular from the foregoing, it is unnecessary to insert them.

The *permanent* cure of the more aggravated forms of dysmenorrhœa, especially when of long standing, is perhaps more difficult and of rarer occurrence than of amenorrhœa. We have yet much to learn, both as to the pathology and treatment of this distressing malady—a malady, which perhaps inflicts more pain and suffering on its unhappy victims, than any other “in the whole catalogue of human ills.”

Much has of late been said and written in favour of the vol. tinct. of guaiacum as a remedy in dysmenorrhœa, and indeed by some of our popular writers, its remedial powers are held in such high estimation as to be regarded almost a specific. In the following case a trial was made of it, and the result, with many other instances of the same kind, appears to us to show that too much dependence has been placed on its emmenagogue virtue. Whether the aloes and myrrh, or indeed any other mode of treatment would have been more successful, was not in my power to determine, as the patient left the city in a short time after finishing the course of the guaiacum.

CASE IV. Mrs. H. aged twenty-seven, of a delicate constitution though generally enjoying pretty good health, applied for advice, (November 21st, 1831,) under the following circumstances. She began to menstruate at fourteen—the discharge was in every way natural and free from pain until about six months before her marriage, (which took place at nineteen,) when she had a very painful menstruating period, and from that time has menstruated once in *three* weeks, and has always suffered much pain during the flow. She has never been pregnant. When I was first called to see her, she was labouring under a very severe and exceedingly painful attack of dysmenorrhœa, of which, however, she was soon relieved by venesection, cathartics, and anodynes. I next directed a strict regimen for a week, and then commenced a course of vol. tinc. guaiaci, prepared according to the following formula:—R. Pulv. g. guaiac. ζ iv.; Carb. sod. ζ iss.; Pulv. piment. ζ i.; Alcohol. dilut. \mathfrak{H} i. Digt. To this was added the volatile spirit of ammonia in the proportion of a drachm and a half to four ounces of the tincture. A tea-spoonful of this preparation was taken three times a day.

December 22d.—Has menstruated once since the course was commenced, but with little or no abatement of pain. Prescribed a large Burgundy pitch plaster to the loins, on the principle of counter-irritation.

March 1st.—This remedy has now been taken regularly for more than *three* months without any benefit, its discontinuance is therefore directed. As remarked above, the patient left the city in a few days, which prevented the trial of any other remedial course.

ART. VI. *On the Circular and Flap Operation.* By R. TOLEFREE, Jr., M. D.

IF the time of amputating after a sufficient injury has given rise to discussion, the manner has furnished equal cause for controversy. Parties in our profession array themselves against each other without sufficient reason; and if a favourite leader only proclaim some novel or antiquated doctrine, the sound is considered the signal for the onset; pens are sharpened, and paper is spread to be stained with the effusions of malice, anger, and despair. We have desired in vain to see an end of these petty feuds, and the abolishment of medical clans, the existence of which perpetuates hostilities, and embitters the temporary intercourse necessary among practitioners. We cannot solace ourselves with the hope of realizing the desirable advent of the hal-

eyon days of medical union and brotherly love. Early education often shackles us with partiality, while similarity of sentiment begets respect and blinds us to truths, because they are unlike those we have cherished. National prejudices conspire to strengthen sectarian views; time increases our attachment to the deformed child we may have adopted, and hostility or the enmity of our neighbours only causes us to hug the imagined beauty more closely to our bosoms. These feelings have had no small share in producing the discrepancy between the exclusive defenders of the circular or flap operation. Sir GEORGE BALLINGALL, in his late work on Military Surgery, has entered the arena to close the contest, and while his object is commendable, his conclusions appear to us erroneous. We will cite the professor, page 60, Military Surgery.

“I know of no comparative estimate of the results of amputations performed by the circular incision and by the double flap, which will enable us to decide their respective merits by the test of experience; but in instituting any comparison between these operations, one of the first circumstances which strikes a surgeon is the different extent of cut surface left by one operation and the other. It has long appeared to me that the difference in this respect is much greater than many surgeons are aware of; and I have often remarked, that the extent of cut surface exposed by the double flap operation, appeared to me nearly double that left by the circular incision. I was not however aware, until within these few days, that in making this statement I was so near the truth. Wishing to ascertain the relative proportions *with precision*, I submitted the matter to two scientific gentleman, Mr. Robinson, Secretary of the Royal Society, and Mr. Russel, the lecturer on Natural Philosophy, each of whom came to the same conclusion. Supposing the limb cylindrical, and the amputation performed in the old way, by cutting at once down to the bone, and then dividing it by the saw, the cut surface exposed would be the least which it is possible to expose by any mode of operating. Supposing again, that the limb is amputated by the double flap operation, and that the length of each flap is exactly equal to the breadth of its base, the quantity of cut surface exposed by this operation would be rather *more* than double that exposed by the former. Or in other words, supposing the limb to be cut represented by a cylinder three inches in diameter, then, if the section be made at right angles to its length, the area of the surface exposed will be 7.05 inches nearly. If the section be made again by two flaps of the proportions formerly mentioned, the area of the surface exposed will be 15.5 inches, nearly being the area of an ellipsis formed by the section of a cylinder whose length is twice its diameter.”

The professor supposes what cannot happen, that the stump in a single circular incision shows a smooth face like a board or stick, and this surface is perpendicular to the length of the bone; and he also supposes there is no retraction of the muscles to make the incision have an irregular aspect. Both of these assumptions are at variance with facts, and we cannot grant the doctor what he requires in support of his inferences. Let us, however, take the circular operation

with a double incision, and we will see the difference between it and the double flap; and at the same time allowing the doctor's manner of reasoning to be adopted. I will commence with the double circular incision, and follow the best authorities in their direction for operating. S. COOPER says, "In a thigh of ordinary dimensions, the first incision should be made four inches below where it is intended to saw the bone." Let us suppose the limb to be 18.8496 inches in circumference, (and this is not far from the ordinary periphery of the thigh at its upper third,) and dividing this number by 3.1416, we have a diameter of six inches. The figure presented by the stump in this operation we will give in the words of GUTHRIE. "It is generally allowed that the appearance of the stump when the bone is sawed through should be that of a broad inverted cone, the bone forming the apex." Here we have a cone by the circular operation, the distance of which from the centre of the base to the apex being four inches, and half its base is three inches, and these two lines, (distances,) form the base and perpendicular of a right-angled triangle, from which data we can find the hypotenuse or slant height of the cone. Thus, the square of 4 added to the square of 3, equals 25, and the square root of 25 is 5, which is the slant height of the cone. Now, to find the convex surface of this cone, you must multiply the circumference of the base by the slant height, and half this product will be the superficies required. Thus $18.8496 \times 5 = 94.2480 \div 2 = 47.1240$ inches, the surface of a stump from the circular operation. In this supposition we have considered the limb to be amputated a perfect cylinder, but it must be recollected that it is more or less conical, and having the base towards the body, it will consequently increase the size of the surface of the circular operation, and diminish, according to the decrease of the circumference of the limb, the surfaces of the flaps. This consideration has been lost sight of in the computations, and in some situations it has more bearing on the question than many imagine. We will not dwell on this, but follow the professor in *his own manner* of calculating. Let us in the second place compute the surface of the double flap on the very principles the professor establishes, "that the length of the flap is equal to the breadth of its base." We would simply remark that this length of flap is more than is required in every situation, and without entering the contest either as exclusive defenders of either operation, or being ranked among the supporters alone of Gallic or British practice, we as a third party, enjoying the advantages of the experience of both sides of the British channel, should weigh, candidly and logically, the disputes of our transatlantic brethren. Let us say, however, with the Doctor, that the flaps are elliptical, and we must necessarily have two elliptical

segments in each of which we have the conjugate diameter as a base equal to six inches, and we have half its transverse diameter equal to six inches, making the whole transverse diameter, if the figure were complete, twelve inches. It is plain, that if the base of these segments were in coäptation, and their surfaces in the same plane that the figure would be a perfect ellipse, the surface of which would be equal to the inner surface of the two flaps.

Multiply the transverse by the conjugate diameter, and this product by the decimal .7854, and the surface of the ellipse is the result. $12 \times 6 = 72 \times .7854 = 56.5488$ inches, the surface of the two flaps.

With this mode of calculation a small difference exists in favour of the circular incision. It is, when stated in round numbers, about 47 for the circular, and 56 for the flap operation; or to state it so as to be better recollected, we may say that the surface of the circular wound, after the operation, is to the flat surface, as 4 to 5. The reader in this computation must not forget that those who calculate in the manner of Sir George Ballingall, base their reasoning on the supposition that the stump of the bone is cut in a pyramidal shape, when the truth is, it is the same as in the circular operation. These are trifling considerations by themselves, still when accumulated they are of considerable moment in the comparison.

We trust that by giving the steps of our calculations, we have avoided all the vagueness which has been thrown around the subject, and we must consider the differences of opinion have not arisen so much from prejudice as thoughtless conclusions. Dr. Ballingall would persuade his auditors and readers, that the flap operation presents a surface more than twice as extensive as the circular operation; while Dr. GEORGE BUSHE, in the *Lancet*, in his article on amputation, would wish us to believe that it was a self-evident truth, neither requiring reasoning nor computation, that the double flap amputation leaves a smaller surface than the circular incision. Both are wrong, for the first would teach that the hypotenuse of a right-angled triangle is greater than the sum of the base and perpendicular; while the second maintains that the hypotenuse of a right-angled triangle is less than either the base or the perpendicular. I will not dwell on other points in the comparative merits of these two operations; they have been ably treated by others; and if the remarks I have made will contribute to settle the difference, I will consider it "*pretium operæ*."

New York, December 17th, 1833.

ART. VII. *Case of Ununited Fracture of the Os Humeri, Successfully Treated by the Injection of a Stimulating Fluid into the Wound.* By ISAAC HULSE, M. D. Surgeon U. S. Naval Hospital, Pensacola.

ISAAC HARDING, seaman, æt. 25, fell from the mizen-top-sail-yard of the U. S. ship *Vandalia*, on the night of the 29th of November, 1832. He lighted upon the captain, by which probably, he escaped instant death. On taking him up it was found that the os humeri was fractured four inches above the olecranon, the fractured end of the inferior portion protruding through the skin. He received by the fall a concussion of the brain, and several bruises of the scalp and of various parts of the body. Delirium was the consequence, and after some days erysipelas of the scalp. He was bled and placed on the antiphlogistic treatment by Dr. SPOTSWOOD, who was the surgeon on board.

On the 9th of December following he was admitted into this hospital. Symptoms on admission—pain in the head; vessels of the conjunctiva turgid with blood; occasional delirium; throbbing pulse; the antiphlogistic treatment was continued.

Two months after the reception of the injury his health was restored, but no bony union was formed, and I thought of resorting to the seton of Dr. PHYSICK. I, however, adopted a plan with a similar intention, viz. that of daily injecting a stimulating fluid into the wound, which still remained open, and had become fistulous. I began with port wine and water, proceeded to salt and water, and eventually to a solution of sulphate of copper. In two months a firm union was established, and the patient was able to exercise the arm at driving nails and other occupations requiring a strong action of the limb. The fistulous opening continued, and about two months since a small fragment of bone presented at the orifice, and was taken out. On the 25th instant it was observed that another fragment was advancing towards the surface; it was removed by the scalpel; one end of it was found resting upon the shaft of the humerus, and the other lying in the sinus. It was an inch and a half long, and one inch broad.

It seems very probable this last step will lead to a complete cure of the case.

I am not aware that this plan of remedying artificial joints has been practised by any other; yet it may be a question whether the union in this case is to be attributed to the injections or to the fragments of bone keeping up irritation by their presence. In opposition to the

latter supposition it may be asked, why did they not promote the object from the beginning? If the decision is given in favour of the injections, we may be enabled to exhibit them in cases where there is no fistulous opening, by passing in an instrument till it comes in contact with the interstitial substance between the fractured extremities of the bone, and inserting a tube to be kept constantly applied, through which the injections may be thrown. I think they will be found to excite an inflammation more extended, and with more certain success than the seton.

In these suggestions it is the furthest from my views to detract from the merits of our distinguished countryman, who has made a discovery valuable to surgery, for which he commands a tribute of respect from both hemispheres; on the contrary, it is acknowledged, his inventive genius has led to the present experiment and reflections.

U. S. Naval Hospital, Pensacola, Sept. 30th, 1833.

ART. VIII. *Observations on Scarlet Fever, as it Prevailed in Augusta, Georgia, during the Winter and Spring of 1832-33.* By F. M. ROBERTSON, M. D.

AS it is not our intention to enter into a detailed treatise on scarlatina; the observations contained in the present article will be confined to the disease as it appeared in this city and its vicinity, during the last winter and spring.

Scarlatina made its appearance in Augusta about the 20th of December last, (1832,) and has continued with more or less violence up to the present time, (May 1833.) Few families have escaped. In some, the disease occurred in its most benign form; in others, it assumed a most dangerous character. Occasionally only one individual in a large family was affected with the disease, and in other instances it gradually progressed through large families; each member, one after the other, suffering from an attack. It may be proper to remark, that it had been prevailing in the upper counties of Georgia, some time before its irruption here. In fact, during the whole summer of 1832, frequent reports reached us of its extensive prevalence in various parts of our country.

The disease manifested itself in our city in all its various grades, from the most simple form, up to the most malignant and dangerous. Some families had it so slightly that little medical aid

was found necessary, while their near neighbours were called to lament the loss of one, two, and, in some instances, three children. The three varieties, as described by DEWEES, EBERLY, and other writers, were well marked. They are, however, but different degrees of the same disease, without any radical or essential difference in the nature or seat of the primitive derangement. The identity of diseased action, as modified solely by the degree and seat of the primitive derangement, has been well established, and, by rigid analysis, many diseases which have heretofore been considered as essentially different in their nature, can be reduced to the same modification of the physiological state of some one of the organs or tissues. We adopt the division of the disease into *Scarlatina simplex*, *Scarlatina anginosa*, and *Scarlatina maligna*, merely on account of the assistance it affords in drawing up our plan of treatment, and not in consequence of any essential difference in their nature, for they are identical, owing their ultimate differences entirely to the difference of the degree of intensity of the derangement of the tissue first affected. Dr. Dewees describes the three forms, as follows:—

“By *Scarlatina simplex* is to be understood the simple constitutional disease, without any morbid affection of the throat. By *Scarlatina anginosa*, a high degree of the same disease—the throat being at the same time inflamed and swollen. By *Scarlatina maligna*, the same complaint, in still greater violence—the throat being affected, or otherwise, the symptoms malignant.”

As we merely intend giving our own views as to the nature, and more particularly, the treatment of the disease, we will not enter into a detailed account of the symptoms peculiar to each form, but merely notice the varieties that occurred in the cases which came under our observation. We shall speak, therefore, of what we have seen, and not of what we have heard.

It differed in no essential particular from that described by the numerous writers who have noticed the affection. It generally made its appearance by a chill or chilly sensation, nausea, vomiting, and, in some cases, slight diarrhœa; fulness about the head, particularly in the region of the orbits and frontal sinuses, and, in almost every case, more or less prostration of muscular energy. In the simple form, the eruption generally came out from the second to the fifth day. There was no regularity in the time of its appearance. On examining the tongue, it invariably presented the peculiar appearance noticed by most writers on scarlatina. Even in the mildest cases the tongue was covered with a white fur, with the elongated papillæ projecting above it. These papillæ were generally of a vivid scarlet hue, and appeared as though the apex of each one had been removed by a

pair of bone-nippers, or some such instrument, which gave them a truncated form. In the anginose, and more violent forms, this peculiar appearance was more striking; the tongue was covered with a thicker and darker coat, while the elevated papillæ and its borders presented an intense scarlet hue. On examining the throat, the whole surface of the fauces will be found to present a streaked-red appearance, extending over the soft palate and uvula, and in some cases, as far back as can be seen. In some instances, the soft palate and uvula are relaxed; in others, the inflammation appears to be more confined to the tonsils, which are often so much swollen as to render deglutition almost impossible. In some instances no sloughs or ulcerations were observed; but a general inflammation of the mucous membrane lining the fauces, with a copious secretion of ropy, tenacious mucus, which impeded respiration and deglutition. In other instances extensive sloughs were thrown off from the eighth to the ninth day. The redness of the throat appeared more diffused and intense, and often the coat would scale from the tongue and leave its surface of a vivid scarlet hue, appearing as though the whole extent were studded with granulations. In some cases the ulcers were confined to the tonsils, from which there was a copious secretion of glairy, tenacious mucus, which was brought up with much difficulty. We have seen the whole interior of the mouth in some cases assume a dark or livid appearance; in these cases the breath was remarkably offensive. With regard to the state of the circulatory apparatus after the chill or chilly sensation has passed off, and the fever comes on, our observations accord with the following remarks of Dr. Dewees:—

“The reaction of the system being now completely developed, the pulse exhibits the character which belongs to the existing form of the disease—preternaturally frequent, quick, and active, though still moderate if the disease be *simple*. More frequent, irritated, and tense, if it be *anginose*—of greater frequency still, but not so full, resisting, and firm, if it be *malignant*. The temperature of the body, the thirst, the scurf on the tongue, are also graduated in the same way; each symptom increasing in intensity, according to the augmented violence of the case.”

The eruption presented considerable varieties in its appearance. In many cases, it was generally diffused over the entire surface of the body; in others, it appeared on different parts—thicker in some than in others. In the malignant form, it was seldom developed distinctly; it had more the appearance of large patches, of a purplish or red hue, apparently rough. These patches were well-defined on the cheeks. In fact, in these cases, the eruption never had the appearance of being completely developed. The temperature of the

surface was, invariably, above the ordinary standard in fever. When the eruption commenced declining, the patients were annoyed by the most violent itching. In small children this symptom was tormenting, as they were kept continually scratching. A desquamation of the cuticle, on a decline of the eruption, was observed in a majority of cases. The disease, as it appeared among us, was decidedly of the inflammatory type. Even when the typhoid symptoms, as they are termed, came on early in the malignant form, still the preceding inflammatory action was proportionably high. Although the pulse may not be so resisting and firm as in the anginose form, yet it is evident that the circulatory apparatus is rather embarrassed in its operations, and not suffering from debility. A determination to the brain was frequent, and most of the fatal cases terminated in coma, with either a torpid state of the bowels or colliquative diarrhœa, and a copious eructation of gas from the stomach. In many cases of the simple and anginose form, costiveness was not an unfrequent symptom, and, in fact it was often remarkably obstinate throughout the whole course of the disease. Swelling and suppuration of the glands about the neck were frequent. Dropsical effusions also occurred in many cases; when this took place in the ventricles of the brain it was generally fatal. It is from this cause we may account for many of the sudden cases of death, where the patient presented every appearance of being in a fair way to recovery. These instances of a dropsical tendency were regulated, we think, very much by the course of treatment adopted; but more of this when we come to that part of our subject relating to blood-letting.

As to the cause of the disease, properly speaking, its contagious or non-contagious nature, we can add nothing from our own experience to what has been already said, that would be calculated to throw any additional light on the subject. The evidences on this point are conflicting, and after what has been written on the subjects of contagion and epidemics, it would be mere repetition to say any thing in this place. It is a point which will, perhaps, remain forever unsettled in the minds of some practitioners. It evidently prevailed in this city as an epidemic, although many facts could be brought forward that would go far to establish the doctrine of partial or contingent contagion. Some think it both epidemic and contagious, and others again regard it as infectious.

The disease, although most prevalent and fatal among children, was not confined exclusively to them; we observed several cases in persons from forty to fifty years of age, and one case in an old negro woman of sixty. It was also generally severe with persons

of this class, particularly among those whose viscera were disordered from the habitual use of ardent spirits. Persons of this character were almost invariably taken off by fatal congestions of the abdominal viscera or brain. Several cases also occurred in infants at the breast, but it was generally very mild, with scarcely any fever. That class among whom it was most fatal, were children from three to fifteen years of age. In many of these cases it appeared to be complicated with worms. We think it probable that this only occurred in cases where the irritation was extended to the mucous membrane of the alimentary canal; thus the worms acted as an additional irritant, and served to impress upon the disease a degree of complication and malignancy which would not otherwise have occurred.

We observed no cases of second attack in the same individual, although we heard of several. May not the sequelæ of the disease, which sometimes come on suddenly after the patient is to all appearances well, be mistaken for a second attack? There was one case that came under our notice, in which there was a second eruption after the first had desquamated, and the child to all appearances perfectly well; yet from its character we could not regard it as a second attack. It differed from the first in appearing to be seated entirely beneath the cuticle, without the slightest elevation of the papillæ or any portion of the skin. The entire body and extremities were covered with it. It remained out twenty-four hours, and then left the patient, having been accompanied with no further symptoms of disease.

Writers differ in opinion relative to the pathology of the disease under consideration. Some regard it as an essential fever, terminating by an eruption or angina; others as sympathetic of angina. There can be no doubt that the soreness of the throat and fever do take place in many cases without the eruption. We have never observed, on the contrary, that the eruption or fever appeared without the throat and tongue having previously exhibited some evidences of a derangement of its mucous membrane. This may not be observed in all cases, but it is merely because the patient is not always seen by the practitioner at the onset of the disease. There may not be the slightest febrile action, yet we can always detect, on examination of the tongue and fauces, the appearances peculiar to these parts in this disease, particularly the elevated papillæ of the tongue appearing above the white fur. Hence we think the definition of *scarlatina simplex* incorrect, when it is said to consist in "a simple constitutional disease, without any morbid affection of the throat." In one or two cases of children running about the house, where we had patients

labouring under scarlet fever, on examination of the tongue and fauces, we observed the peculiar appearances above-mentioned, two or three days before any febrile symptoms were manifested. These circumstances, taken in connexion with the ratio symptomatum of the disease, can leave no doubt as to the first link in the chain of morbid derangement. In almost every case, we shall find that in proportion to the degree of this primitive derangement, will be the violence of the general disorder of the system. We regard the progress of this disease as additional evidence of the correctness of the following pathological principles of BROUSSAIS.

“In every instance irritation is always identical in its nature. In whatever part of the organization it may be seated, whatever causes may have brought it into action, or the number of sympathies which it developes, it is always characterized by an afflux of fluids. It always commences in a single organic system, and is afterwards communicated to others. It is primitively local, and never changes its nature in migrating from one part to another, but can always be reduced to an augmentation of the phenomena which are the evidences of vitality.”

In this manner we may account for the complications so frequently met with in this disease; for the propagation of the irritation from the throat to those viscera, the derangement of which always endanger life. Many object to the doctrine of irritation, as being too simple. On examination, however, we shall find that this is one of its most commendable features. Truth is simplicity itself—nature in her most lovely garb. Let us examine the works of creation, according to the fundamental laws of philosophy, and what is there more simple and easy of comprehension! Take away from us these fundamental principles, and what appears to us more vague, mysterious and complicated! Let us then examine the disorders of the human frame on philosophical principles, and the nearer we approach to truth, the more certain and simple will be our management of its diseases. While the various sciences are every day yielding their beautiful laws to the experiments of the philosopher, why should medicine slumber in uncertainty and quackery? But the foundation of a more correct system of observation has been laid.

“Already has the road been chalked out, which is to lead to this important consummation. Already has a light broken through the horizon, to light us on to victory and success; and the clouds of error are fast dispersing before the all-illuminating influence of truth, while the car of medicine enriched with the inestimable treasures of physiology and pathology rolls on, majestically making constant accessions to human happiness, and securing new triumphs over human misery.”

Having taken a cursory view of the symptoms and pathology of the disease, we will now pass to the subject of its treatment.

In the mild form of the disease, little medical aid will be necessary. Rest, low diet, mucilaginous drinks, and keeping the bowels in a soluble state, will generally be sufficient. These cases seldom come under the immediate notice of the physician. But when the disease assumes the second or third form, no time should be lost, immediate recourse should be had to those remedies which experience has shown to be the most effectual in checking its progress.

In the anginose form, we have found an emetic to be the best mode of commencing the treatment. Many objections have been urged against this remedy, but the weight of authority, as well as experience, are in favour of the use of emetics in this disease. We generally prescribe ipecac. and tartar emetic in combination, and encourage the vomiting by means of copious draughts of tepid water. We have invariably found the vomiting to have a most decided effect in checking the inflammation of the fauces, and reducing the general febrile action, particularly the pungent heat of the surface. Some object to the emetic in consequence of its irritating effects on the stomach. We are as decided in our objections to emetics, in cases where the stomach is the point whence the irritation is radiated, as any one can be. In what is generally termed bilious fever, where the irritation is concentrated on the mucous membrane of the stomach and duodenum, they are evidently injurious, and should be proscribed. But experience is in favour of their use in scarlet fever, and it is not contrary to reason. Thus, we must remember that "experience is blind if unenlightened by reason, and reason too vague and uncertain unless it be based upon experience." Others again object to their use, in consequence of their tendency to produce prostration; and particularly those who consider this disease to be of a typhoid character. This objection we think unfounded. In croup, for instance, there is great apparent feebleness of the circulation, and evident prostration of the muscular energy, yet we find that nothing is so effectual in subduing the anginose symptoms, and restoring the centrifugal action of the circulation, as an emetic carried to copious vomiting. The typhoid symptoms are consecutive to the inflammation of the fauces, and in proportion to the severity of the local irritation; consequently, a remedy which will subdue or arrest the progress of the local affection, must be efficacious in preventing the typhoid stage. Experience has amply shown that emetics are among the best remedies we have against the anginose affections. In the

disease in question, they not only exercise an important influence over the general circulation, but also effectually cleanse from the throat that tenacious mucus which is peculiar to this affection, and which contributes in no small degree to aggravate the irritation of the fauces.

When we speak of the use of emetics in scarlatina, we allude to the onset of the disease—before the sympathies, which the local irritation will bring into action, have implicated other organs, in which case they might be injurious. They should be administered when the inflammation of the throat predominates, at which time there will be no danger from their action on other organs. In this case we stifle the irritation in the bud—meet it in its primitive position, and prevent or lessen the development of those sympathetic actions, through which alone the whole organization can be implicated, for observes Broussais, “irritation, acting on one point of the organization, is repeated afterwards in other points through the medium of the nerves, and this action is what is termed sympathy.”

The great danger of this disease arises from the formation of visceral congestions. When proper depletion has been neglected in the first stage of the affection, a determination to the brain, or some of the abdominal viscera, will, most assuredly, take place. It is from these complications that the great fatality in this disease arises. Dr. ARMSTRONG is of the opinion, that these consecutive lesions are, in a majority of cases, the immediate causes of death. Under these circumstances, we do not hesitate to pronounce blood-letting to be proper, and, in many cases, absolutely necessary at the onset of the attack. But here again we are met with the old objections of typhus and debility; they are held up to us in all their terrors by the opponents of blood-letting. Let us throw aside these names, or, merely regarding them as symptoms, endeavour to refer them to the structural derangements whence they arise; by this course of analysis, we shall regard the disease in its true light, and not suffer its nature to be represented by a single symptom, which will inevitably lead to a practical blunder. The disease consists, primitively, in an acute and rapid inflammation of the mucous membrane of the mouth and fauces. This inflammation is liable to be radiated, if I may use the expression, to other important organs, and in proportion to the severity of the primitive derangement, will be the danger to be apprehended from the consecutive lesions. How, then, are we to ward off this typhoid stage? shall we commence by anticipating the debility, and throw in stimulants to fortify the system? Nothing will

more certainly frustrate our design, and secure to our enemy a triumphant victory. This debility is merely apparent, and, for the support of the assertion, we refer you to the following well-established principles.

“Excitation,” says Broussais, “is never uniform throughout the system; when it exists in a greater degree in one organ, it is in a less in another, and accumulates in one tissue by abandoning some other.”

Again—

“The augmentation of the vitality of one or more organs, always leads to the debility of some others.”

And again—

“Consecutive debility is not a disease, but is connected with irritation—being produced by it, and continuing or ceasing with it.”

The apparent debility and typhoid appearances observed in the disease under consideration, arise in consequence of the irritation being radiated from the throat, and concentrated on some one of the vital organs. In this case, the excitability or vitality of the organs are elevated to such a degree, that a proportionable debility of others is the inevitable consequence. It is true, we should not bleed from the general circulation after congestions have actually taken place—where the deadly and fatal coma has but too surely revealed to us the true situation of our patient. The golden moment has been suffered to pass by unimproved, and we must now trust to revulsives and counter-irritants. In the treatment of this affection, the first twelve or twenty-four hours is every thing. We must lay the axe at the root of the evil. Our first blow must be a decided one. Of course, the constitution and temperament of our patient must have some influence over the application of this remedy. To say that blood-letting is proper or necessary in all cases, would be equally wrong and dangerous as to prescribe its use under any circumstances. But when we have come to the conclusion, from the nature of the existing symptoms, that it is necessary, we should bleed until a decided impression is produced upon the system, even if it should be necessary to carry it *ad deliquium animi*. We used the lancet freely in a majority of the cases that came under our care, and were never disappointed in our expectations. The delirium and determination to the head was relieved, the restlessness quieted, and visceral congestions prevented. We also found that the dropsical effusions and swelling of the glands of the neck, were less frequent in the cases treated by venesection than those in which it was not used. It is to be feared, that those who are so loud in their denunciations against blood-letting, have not employ-

ed it sufficiently early in the disease. This is a most important point. Prescribed too late, there can be no doubt of the injurious effects of blood-letting; but employed at the onset of the attack, its power in controlling the march of inflammation is almost omnipotent.

It will generally be found requisite to administer a cathartic after blood-letting has been employed, or where the treatment has been commenced without it. We find costiveness, and sometimes obstinate constipation, to be a frequent occurrence; and when we reflect on the great degree of irritation and restlessness which are occasioned by the lower intestines being loaded with fæcal matter, we must be convinced of the necessity of cathartic medicines to remove the difficulty. But we must be careful that the remedies employed for this purpose be not too irritating, as they will leave the mucous membrane, which they have relieved of a load of irritation, in a worse condition than it was before. Enemata will not be sufficient alone to fulfil this indication; they may relieve the rectum of the fæces, but there is a certain condition of the mucous membrane caused by the irritation which requires something more active. We generally administer from five to ten grains of calomel, to be followed in a few hours by a full dose of castor oil. After the bowels have been relieved by this medicine, we maintain them in a soluble state by the daily administration of enemata; and unless the costiveness should become obstinate again, we never resort to any thing more than simple castor oil. We are aware that the advocates of what has been termed “physiological medicine,” have been accused of giving currency to a system calculated to render our practice inert and inefficient, by banishing from the list of our remedies all the most potent medicines. This, we are satisfied, has arisen from misrepresentation. Because we deprecate the *abuse* of emetics and cathartics, we are accused of wishing to blot these remedies from the materia medica. Because we have cried out against the horrid effects of an indiscriminate use of calomel, and those who prescribe it in an empirical manner, our opponents say, that we wish to proscribe the use of the very Samson of the materia medica. These misconstructions and misrepresentations are but the fruits of ignorance and prejudice. We are not opposed to the use of calomel when prescribed in a judicious manner. Our objections are only against the abuse of this important article. We would but rescue it from the oblivion into which its professed friends are fast hastening it. In every case of irritation of the mucous membrane there is more or less congestion of the capillary vessels; and we must readily see how cathartics may act beneficially under such circumstances. This is the very

condition of the mucous membrane of the alimentary canal, in which we have recommended the use of calomel and oil. The accumulated *faeces* here act as an additional source of irritation; the irritation of the disease is extended to the rectal as well as genital mucous membrane, and a cathartic administered as directed above will never fail to procure manifest relief. The first evacuations after the medicine has been administered will be found to exhale a most intolerable *foetor*, and not unfrequently it will be necessary to burn sugar or vinegar to remove the offensive odour from the apartment of the patient. Thus we administer calomel to procure a definite result, and not to cruise through the liver and portal circulation after *black bile*, or imaginary demons, whose peculiar residence and hiding place is supposed to be in this innocent organ.

It is necessary in this disease, as it is in all others arising from irritation, to pay strict attention to the diet of the patient. During the period of excitement all articles of a stimulating nature should be proscribed. Officiousness on the part of nurses, and those who are fond of giving advice in such cases, has been the occasion of the fatal termination of many cases. It is of as much importance, if not more, that the physician should be obeyed with regard to the diet of the patient, as it is that his prescriptions should be faithfully complied with. The propriety of such a course must be so obvious to every reflecting individual, that we will say no more. Flaxseed tea acidulated with lemon-juice will form an excellent drink. In fact, any mild mucilaginous fluid will answer every purpose, provided it be not offensive to the stomach of the patient. We have no objections to the use of sago or baum tea. We have been in the habit of allowing cold lemonade in all cases, without the slightest injury to our patients. When the force of the disease is subdued, and the patient begins to mend, we must gradually increase the diet in proportion to the restoration of the digestive powers. After having confined the patient to an absolute diet during the period of high excitement, we may then commence with arrow-root and the different articles of the same nature.

We have never resorted to sponging with cold water, or cold affusions, for the purpose of relieving the intense heat of the surface, and therefore can say nothing as to their efficacy. We have found the warm bath useful in many cases in which the eruption had suddenly seceded; also in cases complicated with convulsions. We think it not only unnecessary, but highly injurious, to confine the patient to a feather bed, and load him with covering, for the purpose of warding off the effects of cold. He should not be exposed to a current of

air; but he must be lightly covered, and confined to a mattress instead of a feather bed. This we think of much importance.

For the swelling of the glands about the neck we use the common poultice of baker's bread and milk. Under this treatment we have not had a single case in which the glands suppurated. We are also in the habit of applying this poultice to the throat when the fauces are much swollen and painful; it should be renewed as soon as it becomes cold. We think these external applications to the throat have had a better effect than all the gargles that have been prescribed. Many persons will not be satisfied, unless they are permitted to use a gargle of some sort, and therefore to prevent them from doing something that would aggravate the disease, we generally permit the use of such as are not likely to be injurious.

When the disease assumes what is termed the typhoid type, the treatment must be directed against the local congestions and determinations. The principles which should guide us here, do not differ from those in similar cases. The only sure security against this fatal termination, is the judicious and prompt treatment of the disease at the onset. As we observed above, the first twelve or twenty-four hours is every thing. Arrest the disease at the onset, and it will be easily managed afterwards. There is no question, that the dropsical effusions may be prevented, in a great measure, by timely and effectual sanguinary depletion. Dr. Dewees observes, "we are inclined to believe, that this affection arises from the accompanying inflammation not having been properly subdued by early depleting remedies," consequently the dropsical effusions, arising from chronic irritation or inflammation, must be treated accordingly.

Augusta, Georgia, May, 1833.

ART. IX. *A Case of Ossification of the Muscular Tissue.* By DAVID L. ROGERS, M. D., Lecturer on Surgery in New York. [Communicated by S. R. KIRBY, M. D.]

IN June, 1832, Dr. R. was first consulted in the case of James Mulwill, aged thirteen years. His father stated that his son, from his infancy, had been in good health, and was remarkable for animation and a high flow of spirits. About six months ago, it was perceived that his health began gradually to fail, and without any perceptible cause. At first, a loss of motion in the arms was noticed;

he was unable to raise them to his head or carry the elbows to any great distance from the body. The motion of the right arm lessened every day, until it was permanently fixed to the side of the body. Shortly after his head inclined forwards and downwards on the sternum. At the time Dr. R. first saw him, his appetite and digestion did not seem to be impaired; slept well at night, and the bowels were regular. On examination, it was found that the pectoralis major muscle was ossified at its superior part and extended in the direction of the clavicle to the arm; the bony deposits forming high and irregular elevations. The sterno-cleido mastoideus was ossified from the sternum to its middle portion, with several elevations. The back exhibited the greatest quantity of ossific matter, having a tubercular appearance. The scapula was fixed to the ribs and studded with bony excrescences. All the muscles going to the scapula appeared more or less affected, viz.—the trapezius, rhomboideus, subscapularis, &c. The latissimus dorsi formed a large bony plate, from its origin to the angle of the scapula; at this part it had united to the ribs forming a large tubercle. The longissimus dorsi was in a similar condition, extending upwards along the spine, resembling a splint, and to this may be attributed the entire loss of motion in the lumbar vertebra.

The treatment was various, and may be considered a series of experiments, to check the predisposition to the formation of bone.

His general health at this time not being materially affected, recourse was had to alteratives, consisting of the different preparations of mercury with sarsaparilla. Having used these for a length of time without benefit, the acids were employed without effect, viz.—the nitric, muriatic, and sulphuric; the carbonate and phosphate of iron were administered with the same result; the iodine was also given, but without advantage.

Finding at the expiration of three months, that no change for the better had taken place, and that the bony depositions had increased, all active treatment was now abandoned, and he was directed to live principally on salted provisions; the object was to produce a state of his system resembling that in scurvy, as it is known that bony depositions do not take place in this disease, and that fractures, which have been united for several years, are sometimes separated in the scorbutic diathesis.* Until this time he had been an office patient, but from some cause unknown he omitted to call for several months. In March, 1833, he was visited at his residence; he was much

* Lord Anson's Voyage around the World.

changed; his general health had suffered; had lost his high spirits and was very irritable; had a diarrhœa; was greatly emaciated; the ossific depositions had, in some respects, changed their situations; the sterno-cleido mastoideus muscle had become free, and the head returned to its erect position; many of the tubercles of the back had been absorbed, and others formed in different places. Bony depositions had taken place also in the muscles about the trochanter major, particularly on the right side. He was compelled to lie in bed, for the least movement produced excruciating pain. A large collection of matter formed in the thigh near the joint, which when discharged afforded some relief; but the constant pressure on the bony tubercles on the back, caused extensive sloughing, and after three weeks of great agony he expired. The body was partially examined twelve hours after death. The glands of the mesentery were enlarged; no ossific matter in the vascular system, but it seemed to be confined entirely to the muscular tissue. The parts within the abdomen and thorax appeared to be healthy. The pectoralis major and minor muscles were united into one, and attached to the ribs by solid bone. During this part of the dissection a large abscess was opened in each side, containing about six ounces of pus; the tendinous parts of the muscles were not affected. The muscles of the back were all more or less in the same condition. Specimens of the latissimus dorsi, longissimus dorsi, subscapularis and pectoralis muscles, are preserved in the museum of Dr. Rogers. In several instances, spicula of bone projected from the muscles one or two inches; and no doubt from the irritation they occasioned, abscesses were formed.

New York, November 9th, 1833.

ART. X. *On the Iodo-Hydrargyrate of Potassium; its Chemical History and Therapeutical Uses.* By WILLIAM CHANNING, M. D. of New York.

THAT the universe is under the government of laws always harmonious, is a truth maintained by the pagan as well as the christian philosopher. All admit that the phenomena of nature can never be incongruous; but, that every new *truth*, however anomalous at first it may appear in view of those already acknowledged, has its proper place in a grand classification, yet but imperfectly understood. This classification, so far as ascertained, constitutes all that is known of

nature's laws; presenting as it does, in a comprehensive form, the various series of phenomena as yet subjected to the scrutiny of philosophical observation. Hence, in examining the validity of a plausible discovery, it is a primary requisite to its admission, indeed indispensable to its claim upon our least consideration, that it offer no *contradiction to facts* which the experience of ages has concurred to establish. But the human mind is prone to substitute hypotheses for facts, and to rest upon the deductions of ingenious speculation as upon indisputable truths. Thus, though the genius of a Bacon has broken "the spell of the mighty Enchanter of Stagira," the reasonings of the theorist, which to be legitimate must be strictly inductive, are still too often perverted by the visions of scholastic philosophy; and the verity of new positions is tested by criteria false as the dreams which gave them birth.

It is but to repeat a truism, to say that every genuine discovery is a certain advance beyond all past observations; and yet, forsooth, because its admission may perchance demand simply *a new classification of ascertained phenomena*, how often do we hear from the speculative dreamer whose cherished hypotheses are in danger, reiterated allegations that the discoverer aims at nothing less than *the subversion of established truths*. The traveller who asserted to an eastern potentate that he had seen water so hard that men walked upon it, roused in the bosom of the Asiatic, (whose conceptions could embrace nothing beyond the narrow limits of his own experience,) a fanatical spirit not to be appeased but with the blood of the *daring innovator*. An equally striking illustration of the power with which early imbibed opinions, however untenable, cling to the mind, and effectually preclude the most palpable evidence, is thus noticed by the discriminating author of "*Essays on the Pursuit of Truth*."

"A modern writer in his travels through Mesopotamia, relates that at Orfah, (the ancient Ur of the Chaldees,) the river and the fish in it are regarded as sacred to Abraham; and the inhabitants firmly believe, that if any of the fish were caught, no process of cooking could make any impression on their bodies. Here is a notion which any one might at once put to the test by direct trial; a fact, which they have only to stretch out their hands to verify or disprove; yet so thoroughly preoccupied are the minds of the people by the prejudice instilled in early infancy; such awe do they feel in relation to it, that they have not the slightest suspicion of its absurdity; and would think it profane to attempt to submit it to the ordeal of actual experiment."

These general remarks premised, the following facts and reasonings are submitted to the consideration of an enlightened and liberal profession, with the hope that their legitimacy will be tried before no other than the tribunal of impartial experience.

A case of severe affection of the lungs, of several months standing, which came under my care in February, 1832, assumed a few weeks afterwards, a character so serious as to destroy all hopes of recovery, unless by some new expedient the progress of disease should be speedily arrested.

Having already put into requisition unavailingly, the various resources of art sanctioned by respectable authorities, in the desperate circumstances to which my patient seemed reduced, I resolved to make trial of one of the iodides of mercury; medicines which, combining in a remarkable manner the active properties of their energetic elements, had frequently been a favourite subject of reflection, and (for reasons unnecessary here to particularize,) had to my mind promised much for cases of chronic pulmonary disease.

“Both these compounds,” says professor TURNER, “are insoluble in pure water, but are dissolved by a solution of the hydriodate of potassa.” They are both, and especially the deutiodide, soluble also in alcohol. But, as I had repeatedly experienced since the suggestions of LUGOL, the decided advantages of the hydriodate of potassa over alcohol as a solvent for the exhibition of iodine, it was adopted, with similar views in this instance, for the deutiodide of mercury, the more soluble of these mercurial compounds.

In thus preparing this medicine for exhibition, the physical changes which occurred were too remarkable to escape observation. I could not but be struck at once with the rapid disappearance of the brilliant red of the iodide of mercury, and the conversion to a straw colour of the clear colourless solution of the hydriodate of potassa, as the former was gradually added to the latter. Subsequently the mild taste of this solution of the deutiodide of mercury compared with its solution in alcohol, was a circumstance scarcely less likely to attract attention. At length, when on trial of their respective effects on the human system, a correspondent difference in the mildness of their action was manifest, the inference was hardly to be resisted, that in this preparation the hydriodate of potassa acted a more important part than that of a mere solvent; or that in fulfilling this office, new affinities were developed, and new combinations formed worthy of investigation.

To determine this point more satisfactorily, a solution of the two iodides of mercury and potassium, at my request, was slowly evaporated by Mr. G. CHILTON, operative chemist of this city, when beautiful prismatic needle-form crystals appeared of a bright straw colour, so deliquescent as to be maintained only in a very dry atmosphere, and perfectly soluble in water and alcohol in less than one-

third their weight; thus demonstrating the validity of the inference above stated, and establishing the existence in this combination of a definite compound, a new salt, not yet adverted to by any chemical work published in this country.

On referring to foreign publications, it appeared from the “*Annales de Chimie*,” that this with other new salts had been discovered by Mr. P. A. de BONSDORF of the University of Finland, in 1826, and subsequently noticed in an interesting essay of his, originally published in the “*Annalen der Physick*,” maintaining the position that chlorine, iodine, &c. like oxygen, enter into combinations, forming both acids and bases; that thus, the chloride of mercury unites with the chloride of sodium in definite proportions, the former as an acid, and the latter as an alkaline base; constituting, (according to the nomenclature harmonizing with this theory,) chloro-hydrargyrate of sodium.

In conformity with these views, (now adopted by some of the most eminent chemists of Europe,) the salt under consideration is noticed by its discoverer under the appellation of “iodo-hydrargyrate of potassium,” and without touching upon its analysis, his remarks are limited to a simple statement of the mode of its preparation, and its appearance when prepared, as one of the many illustrations furnished by his experiments in support of the chemical doctrine he would uphold. But as this preparation soon after my acquaintance with it developed medicinal powers of no ordinary importance, a more particular examination of its constitution became a matter of interest. The following is the result of such an examination, sufficiently accurate for practical purposes.

By experiment I first ascertained that a solution of eight grains of the *pure* iodide of potassium in a small portion of water, (10 or 15 minims,) would combine with a fraction less than eleven grains of the deutiodide of mercury, maintaining the combination in solution, diluted with water or alcohol to any extent. If more than eleven grains of the deutiodide were added, although a small excess was dissolved in the concentrated solution, on diluting with water, it was promptly precipitated.

Now as $10.9 : 8 :: 450 : 330$, or

1 atom deutiodide of mercury.....	450	} are as {	10.9 to 8.
2 atoms iodide of potassium.....	330		
Add to these per estimate—			
4 atoms combining water.....	36		0.9
	<hr/>		<hr/>
	816		grs. 19.8

Giving as the constitution of the iodo-hydrargyrate of potassium,	{	4 atoms iodine	500
		1 atom mercury	200
		2 atoms potassium	80
		4 atoms water	36
			<hr/>
		Atomic weight	816

From this statement it is evident, that in preparing this salt for exhibition, the labour of crystallizing it in order to obtain a solution of a definite strength is wholly unnecessary; inasmuch as a solution, combining a fraction more than eight grains of the iodide of potassium with eleven grains of the iodide of mercury, may be used as containing twenty grains of the iodo-hydrargyrate of potassium, the difference, if any, being too small to merit consideration.

But if it be desirable to obtain the preparation in a crystallized form, it is important that the definite proportions of the two iodides be observed, particularly that there be no excess of the iodide of mercury. For the *saturated solution of eight grains* of the iodide of potassium will dissolve and enter into combination with more than *thirteen grains* of the iodide of mercury, forming similar crystals soluble in alcohol, but in water precipitating more than two grains of the iodide of mercury. Hence, by dissolving a suspected preparation in twenty or thirty times its weight of pure water, any excess of the iodide of mercury is immediately detected.

The *substances incompatible* with this compound, are the mineral acids, the fixed and volatile alkalies, with their carbonates, acetate of lead, nitrate of silver, sulphuret of potassa, and all preparations containing free chlorine. There appears to be no reaction exerted upon it by the tincture of galls. Its administration in metallic vessels should be avoided.

In reference to the case adverted to, as affording the first illustration of the medicinal powers of this preparation, it occurred in the person of S. L. aged thirty-three, a blacksmith, of a sanguine temperament and an athletic frame, to whom I was called the last week of February, 1832.

He stated that in July, seven months preceding, he was attacked with a severe cold and cough, which had been uninterrupted to that time. He complained of acute pain in the right side, about the middle of the sixth and seventh ribs, much aggravated by full inspiration, and of cough harassing him night and day; expectoration was mucous and inconsiderable; pulse tense and frequent; flesh and strength much reduced; he was feverish in the afternoon, in free perspiration at night, and in the morning chilly and enfeebled.

By means of local bleeding, revulsives, mild expectorants, and demulcents, his symptoms put on so favourable an aspect as to promise a speedy recovery. The pulse was reduced and softened; the cough greatly mitigated; expectoration loosened; pain removed, and strength daily increasing. Improvement thus continued until March 20th, when I found that in consequence of imprudent exposure two days before, he had relapsed. His cough had become urgent; pulse accelerated; skin heated and respiration oppressed. The usual remedies were resorted to with beneficial effects, but in a few days purulent expectoration, hectic exacerbations, profuse night-sweats, &c. ensued. From this period his disease advanced with but temporary meliorations, in defiance of the various remedial measures approved in such cases, presenting the following symptoms on

Saturday, noon, April 21st.—The cough is frequent and expectoration difficult; the sputa muco-purulent, about half a pint daily; the pulse which has been gradually rising, now beats 105 to the minute, quick and feeble; the surface of the tongue resembles raw meat, and the appetite is insatiable; colliquative sweats and diarrhœa; the latter having commenced two weeks since, is now urgent. His nights are almost sleepless, and his strength and flesh so rapidly wasting, that the powers of life must soon fail, unless some means be promptly discovered to overcome these threatening symptoms; especially as his friends state that his father, brother, and other members of the family “have died in the same way,” to use their own language, “of hasty consumption;” and that he has been several years addicted to the excessive use of ardent spirits, by which his constitution appears seriously impaired.

Sunday, noon, April 22d.—R. Deutiod. hydrarg. gr. iv.; Hydriod. potass. ℥i.; Aq. distil. ℥i. M. ft. sol.—Take five drops in water three times a day.

Tuesday, 12 M. third day under this treatment.—Pulse 102; expectoration more free, and otherwise there is apparent improvement.

Thursday, fifth day, M.—Pulse 100; diarrhœa checked; tongue looks better, and other symptoms meliorated. Increase the dose to six drops.

Saturday, M. seventh day.—Pulse 96; sputa lessened and less viscid; night sweats and diarrhœa have ceased; tongue appears nearly natural. Increase the dose one drop daily.

Wednesday, eleventh day.—Pulse 90; continues to improve; doses of ten drops three times a day are now taken without morbid effects.

Thursday, twelfth day.—Pulse 96; patient has just taken a hearty dinner of *fried fish*, impelled by his still uncontrollable appetite.

Friday, thirteenth day.—Pulse 87.

Saturday, fourteenth day.—Pulse 85.

Sunday, fifteenth day.—Pulse 82.

Monday, sixteenth day.—Pulse 96, and irregular; patient is in bed, complaining of nausea, and has been vomiting; sputa mucous.

Tuesday, seventeenth day.—Pulse 102, quick, and with a double beat at irregular intervals; cough is worse; sputa mucous, and *very frothy*; skin hot; patient is complaining of thirst and head-ache. Suspend the medicine.

Wednesday, eighteenth day.—Pulse 72, soft and full; sputa, (about one-eighth of a pint in last twenty-four hours,) no longer frothy, but sero-purulent. Patient has had a sweating sleepless night, but a refreshing sleep this morning, and says he now feels much better in all respects. Resume the solution five drops ter die.

Thursday, nineteenth day.—Pulse 90, quick and irregular; has slept well, though the cough this morning is troublesome, and the sputa are *mucous and frothy*. Suspend the medicine.

Friday, twentieth day.—Pulse 78, soft and full; sputa, (but about $\frac{1}{2}$ i. since last evening,) muco-purulent and *not frothy*; cough is evidently subsiding; a small ulcer has appeared on the tip of the tongue, and an eruption about the lips; appetite being no longer preternatural, the simple diet prescribed is cheerfully observed. Strength is much increased, and general appearance improved. No medicine, unless the cough at night requires a small opiate, as at times.

Saturday, twenty-first day, 9 A. M.—Pulse 72.—12 o'clock, (with Professor MACNEVIN.) Pulse 77, after a walk of a mile, which is borne with little fatigue; cough and expectoration slight. (Dr. M. thinks he will recover.)

Sunday, twenty-second day, 3 P. M.—Pulse 84; other symptoms as yesterday.

May 14th. Monday, twenty-third day.—Pulse 85; cough and expectoration during the night and morning somewhat increased; strength not improved the last two days. No medicine has been taken the four days past, excepting an occasional opiate at night. R. Iod. hydrarg. potass. gr. j.; S. V. T. $\frac{1}{2}$ j. M. ft. sol. Take ten drops three times a day.

Tuesday, twenty-fourth day, 4 P. M.—Pulse 85; sputa but a small quantity; last night slept well with no cough. Continue medicine.

Wednesday, twenty-fifth day, 2 P. M.—Pulse 85; during the night and morning, has had five copious, acrid, bilious evacuations, attended by sharp cutting pains through the bowels, with perspiration. Early this morning vomited a yellow bitter fluid, but now feels very

well, having coughed but little and that without expectoration. Continued medicine.

Thursday, twenty-sixth day, M.—Pulse 87; has slept well; expectoration (purulent) recurred this morning, in small quantity; other symptoms same.

Friday, twenty-seventh day, M.—Pulse 95; expectoration in greater quantity; patient has slept well. Increase the medicine to gut. xx. twice a day.

Saturday, twenty-eighth day, 10 A. M.—Pulse 80.—5 P. M. 76.

Sunday, twenty-ninth day, 10 A. M.—Pulse 84.—5 P. M. 82—showing the continued cessation of the evening exacerbations.

Monday, thirtieth day, 1 P. M.—Pulse 96; expectoration lessened. During the night and this morning, has had ten or twelve alvine evacuations similar to those five days since, and with similar pains in the bowels. Increase the doses gradually.

Tuesday, thirty-first day, 1 P. M.—Pulse 93; yesterday afternoon a slight evacuation, since which bowels have been easy, and are to-day regular. Patient says he feels well, and almost strong enough to work.

Wednesday, thirty-second day, 2 P. M.—Pulse 89, regular and soft; sputa in very small quantity, and gradually losing their purulent appearance. Patient has slept the whole night without cough.

May 24th. Thursday, thirty-third day.—Pulse 76, soft, full, and of nearly natural strength; cough very rare, and expectoration easy; sputa still purulent, but occurring only on rising in the morning, to the amount of a tea-spoonful; bowels are regularly moved with healthy evacuations. Patient eats and sleeps much as when in his best health, and walks two or three miles a day with no more than ordinary fatigue.

At this time, as he was about to leave town, I parted with him, directing the continuance of the solution, (of which he is taking twenty-five drops twice a day,) until the cough and expectoration should entirely cease. His family soon afterwards informed me that these symptoms had totally disappeared; since which, though my professional relation had terminated, I have from time to time, up to September last, a period of fifteen months, been gratified with the intelligence of his continued freedom from pulmonary complaint, with the exception of considerable dyspnœa, or shortness of breath, produced whenever more than moderate exercise has been attempted.

Anxious to test still further the therapeutical properties of the medicine which had effected so much for the case described, on the 16th of May, I assumed the treatment of a young female, (S. B. aged

twenty,) of a delicate constitution, in the last stage of tubercular phthisis, successively abandoned by several respectable practitioners as past all relief. The limits of this memoir preclude all but a brief abstract of the case, from notes at the bed-side.

At 10 A. M. when the remedy was with difficulty first administered, the friends of the patient had for five hours preceding expected each to be her last. Indeed, with a countenance hippocratic, respiration oppressed to the extreme, and a feeble, fluttering, countless pulse, to all she appeared moribund. Under the operation of this agent, repeated from time to time, the lungs were gradually unloaded of their accumulated secretions, expectoration became free and less morbid, and the pulse acquired steadiness and strength until the fourth day, when reäction was completely established. In the course of the treatment, appetite long lost was restored, constipation of the bowels obviated, torpor of the urinary organs and their morbid secretions corrected, troublesome ulceration of the hips healed, and, though the preternatural excitement of the pulse was but little reduced, periodical exacerbations were no longer apparent.

On the 12th, the 14th, and the 17th days respectively of the treatment, collapse recurred after temporary suspension of the medicine, and by its instrumentality alone exhibited *pro re nata*, on each of these occasions reäction was complete.* Life was thus prolonged to the evening of June 2d, the 18th day, the last five of which were passed without even the aid of an opiate, the only accessory before resorted to.

Autopsical examination corroborated the deductions from the vital changes under the treatment, and afforded in the devastation of disease pervading the lungs, incontestible evidence of the utter hopelessness of the case.

A third case, in the last stage of phthisis, (Mrs. S. aged twenty-three,) was placed under my charge by a professional friend, who though firmly convinced that medicine could scarcely retard its rapid progress to a fatal termination, continued his attendance noting the extraordinary alterations following the exhibition of this new agent—commencing May 29th. As in the preceding instances, its effects were here unequivocally displayed upon the urgent cough, the viscid expectoration, the periodical excitement, the preternatural condition of the skin, and the abrasion of the hip—upon the florid tongue, the sore throat, the voracious appetite, the exhausting diarrhœa, and the

* The collapse of the 17th day was so extreme that there was involuntary fecal evacuation.

morbid urinary secretions—both alvine and urinary evacuations of the most healthy appearance being induced and maintained to the hour of death. Equally well-marked was its influence in the establishment of reëction, upon the supervention of extreme collapse on the fifteenth day of the treatment. Besides the reiteration of these attestations to the valuable properties before exhibited, in this case first clearly appeared the evidence of still more comprehensive powers, in the entire removal, through urinary and cutaneous evacuations, of extensive œdema of one of the lower extremities in the first forty-eight hours of its administration.

The case terminated on the nineteenth day. Autopsy not permitted.

Respecting the doses of this preparation employed in the cases we have presented, it is important here to state some particulars.

In the case of Mr. L. if the solution with which the treatment was commenced, be estimated as equivalent to an aqueous solution of eight grains of the proper compound to the ounce, then fifteen drops, the quantity daily used, were equal to a quarter grain of the salt. This was gradually increased to a half grain per diem, when, on the seventeenth day, excessive action called for its suspension. Resumed the day following in half the doses; twenty-four hours use again required its suspension. After four days without medicine, a solution was substituted, of the recently-discovered definite compound iodo-hydrarg. potas. gr. j. in dilute alcohol, \mathfrak{z} j. of which the drops are but half minims. Hence the three doses of the twenty-third day, (gut. xxx.) amount to $\frac{1}{32}$ d of a grain, and these were increased to $\frac{1}{20}$ th of a grain per diem, with which the recovery was completed.

In the treatment of Miss B. (so delicately organized, and peculiarly sensitive in her reduced state,) the morbid phenomena from an excess of the remedy, were to be anticipated in doses much less than in the case first stated. Accordingly, commencing the treatment with $\frac{1}{48}$ th of a grain, and slowly augmenting to $\frac{1}{12}$ th of a grain per diem in two doses: on the eleventh day decisive evidence of excessive action induced its suspension for thirty-six hours. On resuming it in the original quantity of $\frac{1}{40}$ th of a grain daily, renewed excitement the following morning again demanded a suspension; after which, as if susceptibility to its influence were constantly enhanced, reduction after reduction was called for, from $\frac{1}{96}$ th to $\frac{1}{200}$ th, and even $\frac{1}{400}$ th of a grain per diem; and before the case terminated, much less than this last quantity through the day evinced the most indubitable effects.

The experience of the third case not only confirmed that of the

former in respect to the efficiency of exceedingly diminished doses, but proved what was perhaps of no less importance, that very considerable ones might be taken, under some circumstances, without disagreeable consequences—more than three grains of the salt during protracted collapse having been administered in fifteen hours, in gradually increased doses, with no other than the intended effect apparent, excepting the production of three copious alvine discharges, closely resembling in all respects those of a healthy child. As corroborating this testimony to its mild action upon the human economy in any moderate quantity, an experiment of the writer upon himself may be here subjoined. In this, a grain of the salt in half a pint of water was taken at a single dose with the only effects perceptible of a strong metallic taste and considerable irritation of the stomach, neither continuing after five or six hours.

In reviewing the history of these cases, the prominent effects clearly traceable to the recuperative powers of the agent employed, may be summed up under the following heads, as they were manifested in the different functions of the system, viz. 1st. Upon *the organs of circulation*—by the subsidence of the pulse in the first case, as a natural concomitant of the subsidence of disease; and in the second and third cases, as a diffusible stimulant, establishing reaction even in circumstances of collapse apparently desperate.

2d. Upon *the lungs*; in each of the three cases, by the progressive improvement of their secretions, and of the cough and the expectoration.

3d. Upon *the alimentary canal* and its appending glandular apparatus—by subduing in every instance the morbid action, and restoring the healthy secretions of the whole surface concerned in the functions of digestion and defecation.

4th. Upon *the urinary organs*; in the last two cases, by the revival of their activity, and the renewal and continuance of their natural secretions to the last.

5th. Upon *the skin and cellular tissue*; by the sensible changes in the secretions, exhalations, temperature, &c. particularly indicated in the last two cases by the cicatrizing of superficial ulcerations.

6th. Upon *the absorbent and exhalent systems*; 1st, of the mucous surfaces, by the effects already noticed upon the functions of the lungs, of the alimentary canal, and of the urinary organs; and 2d, of the cutaneous surface and cellular tissue, by those adverted to under this head; and particularly upon the lymphatics of the latter, by the prompt disappearance of the fluid there effused.

Or, to express these effects still more comprehensively, *they were displayed in diffusing excitement and equalizing circulation even through the minutest vessels engaged in the functions appropriated to the absorbent and exhalent systems, to the cellular, the mucous, and the dermoid tissues.*

The impression produced by these cases, (the varying phenomena of which had, with the most intense interest, been vigilantly observed,) upon the mind of one whose pathological opinions were early imbued with the doctrines of the physiological school, can be properly estimated only by those familiar with these doctrines; for they alone can appreciate the important and multiplied bearings, thus opened to his view, of such results upon medical practice, if *experience* should ratify the conclusions to which they so emphatically pointed.

Confiding his deductions to a few professional friends, he lost no opportunity afforded in his or their practice to subject their validity to this only decisive test. Wherever disease presented itself, simple or complicated, involving any or all of the functions appertaining to the glandular apparatus, to the cellular texture, or to the mucous and cutaneous surfaces, there the article whose powers had been so signally exhibited, was believed to be indicated, and it was prescribed with effects, which, though anticipated by the argument adduced, could not but excite surprise from time to time, as the doses administered were more and more reduced.

A fourth case of pulmonary disease, a mulatto woman, suffering under a severe form of bronchial phthisis, came under my treatment in May, 1832; and in despite of intemperate habits, in the course of the summer terminated in recovery.

On the 31st of May, the *same remedy*, in my practice, was prescribed for a case of *purulent ophthalmia* of several months standing, in a child four or five years of age, just removed by her mother from the Alms-house, where the disease continued prevalent: on the 1st of June for two cases of *dyspepsia*, the one with habitual torpor of the liver and constipation, and the other with the symptoms of *spinal irritation*; on the 3d, for *dyspepsia* with *amenorrhœa*, *leucorrhœa*, and *œdema* of a lower extremity; and on the 11th of the same month for *hepatalgia*, which had more than two weeks withstood the treatment repeatedly successful in former attacks—attacks that with this patient were premonitory of acute hepatitis.

The cholera, soon afterwards absorbing every minor interest, and modifying every minor disease, the employment of this agent was in a great degree suspended. Notwithstanding its powers as developed

seemed almost specifically adapted to the prominent symptoms of this formidable epidemic, yet, early convinced of the efficacy of other means already extensively tested, the writer did not feel authorized, in a disease so rapidly fatal, to attempt an untried experiment, which might prove the destruction of a fellow being. Accordingly, its trial was restricted to a few cases in the earliest period of premonitory diarrhoea, equally manageable by many other means. Hence, whether it is destined to take high rank among the numerous remedies for cholera, is still a problem for some more adventurous experimentalist to solve.

In the following month of December its effects in a case of (pleuro) pneumonia, and at a later period as exhibited by a friend in ascites with anasarca, went far to prove that the functions of the serous tissues, (so closely allied to those of the cellular,) were not less subject to the controul of this all-pervading alterative.

The results of these several cases were so many additional arguments in support of the conclusions alluded to, and inspired a faith in the extensive application of the medicine, which though occasionally disappointed, has from month to month been steadily augmenting and gaining new proselytes, as experience by degrees unfolded the circumstances which should controul its administration.

Many of these controlling circumstances will be found in the following detail of symptoms induced by its excessive action, comprehending as it does, all the morbid effects in different combinations hitherto observed in a great variety of constitutions, temperaments, diseases and modes of administration.

1. A peculiar dull pain pervading the head in the region of the os frontis—this if considerable being often accompanied by—2. Vertigo; and 3. General languor and restlessness, little exertion fatiguing even to faintness, and sometimes attended by—4. A somewhat sharp pain in the eyeballs, with great heaviness of the lids. 5. Dryness and heat of the mouth and fauces, at times amounting to soreness, (especially of the tongue,) as if they have been scalded. 6. Tongue reddened at the tip and edges, and if the medicine be continued, over the whole surface. 7. The teeth at their roots, (when the jaws are pressed together,) and the gums are unusually tender, the latter being reddened, as in the incipient stage of ptyalism. 8. Herpetic eruption upon the face, the neck, the trunk or upper extremities. 9. Dyspnoea, with a feeling as if the expansion of the chest were restricted as in the early stage of cholera. 10. Uneasiness of the stomach sometimes amounting to nausea and even vomiting, occurring

at intervals. 11. Tormina, or in some instances paroxysms of lancinating pain in the bowels, these often attended by—12. Bilious diarrhoea, and if this be kept up, by—13. Muco-sanguineous discharges with tenesmus, and 14. Hæmorrhoidal tumours, or partial protrusion of the rectum. 15. Pulse reduced in frequency, but with an occasional intermission and double beat. 16. Pulse excited, resembling that of mercurial irritation, and in some cases having an occasional double beat; the skin under this excitement being dry and heated. This state, on suspending the medicine, is usually followed within twenty-four hours by proportional reduction and softness of the pulse, and a corresponding state of the skin.

Multiplied observations have concurred to show that these morbid effects have been less frequently encountered, and if produced have been less durable in proportion as the doses have been reduced; whilst the sanative influence of the remedy, so far from being diminished in the same ratio, in many instances has appeared to depend upon carefully avoiding its excessive activity. Furthermore, acute disease demanding from remedies an intensity of action not called for in chronic—as the cases have been more acute, the multiplication of small doses has much more efficiently answered this indication, than any single dose proportionately augmented.

Hitherto the experience with this preparation has in a great measure been confined to chronic disease—in many of its gravest and in some of its most invincible forms. Its effects however in several cases of acute inflammation, particularly of the throat and of the chest, hold out flattering promises of important aid from it in the management of a class of diseases which too often bid defiance to the lancet, sustained by every adjuvant of the existing materia medica.

Besides numerous forms of disease in which its ascertained powers seem palpably to indicate its use, but in which they are yet unproved, the annexed list exhibits those in which experience has verified its salutary influence. Those marked (A) are such affections as uniform observation has proved to have more readily yielded, or to have been more promptly benefited under its operation alone than under any other known treatment. Those marked (B) experience, (too limited to authorize assurance,) indicates as probably no less under its control than the preceding class. The two diseases marked (C) have both been successfully treated with this article in several instances. But from these few examples, it is believed that other means are to be preferred, excepting when these affections occur in scrofulous habits.

DISEASES.

OF THE CHEST.	
<i>Chronic bronchitis</i> - - - - -	A
<i>Whooping-cough</i> - - - - -	A
Peripneumonia - - - - -	B
Pleuritis - - - - -	B
Phthisis - - - - -	A
Hæmoptysis - - - - -	B

OF THE DIGESTIVE ORGANS.	
<i>Aphthæ</i> - - - - -	A
<i>Tonsillitis</i> - - - - -	A
<i>Pharyngitis</i> - - - - -	A
<i>Chronic gastro-enteritis</i> - - - - -	A
<i>Colitis</i> - - - - -	A
<i>Constipation</i> - - - - -	A
<i>Dyspepsia</i> - - - - -	A
Hæmorrhoids - - - - -	B
Intestinal worms - - - - -	B
Hepatitis - - - - -	B
Peritonitis - - - - -	B
<i>Ascites</i> - - - - -	A

OF THE GENITO-URINARY ORGANS.	
Nephritis - - - - -	B
<i>Lithiasis</i> - - - - -	A

Diabetes - - - - -	A
Menorrhagia - - - - -	A
<i>Amenorrhœa</i> - - - - -	A
<i>Leucorrhœa</i> - - - - -	A
Gonorrhœa - - - - -	C
Gleet - - - - -	B

OF THE SKIN.	
Chronic eczema - - - - -	B
<i>Herpes</i> - - - - -	A
<i>Psora</i> - - - - -	A
Porrigo - - - - -	B
Lepra - - - - -	B
<i>Psoriasis</i> - - - - -	A

OF THE CELLULAR TISSUE.	
<i>Anasarca</i> - - - - -	A
Ulceration - - - - -	A

OTHER DISEASES.	
Purulent ophthalmia - - - - -	A
Carcinoma - - - - -	B
Syphilis - - - - -	C
<i>Scrofula</i> - - - - -	A

The treatment of the affections designated in italics has been marked with a success as unexpected to the patient, as gratifying to the physician. Several cases of carcinoma are now under treatment. Of these all but one have recently commenced the use of the remedy, and that one, a case of scirrhus, evinces the most satisfactory improvement.

If this wide range of disease, alarm the incredulity of the cautious practitioner, perhaps his faith may be revived when he shall call to mind, not the fabled virtues of a panacea too often practically assigned to mercury, but the *well-authenticated facts*, showing the unrivalled efficacy in a long catalogue of diseases, of the several elements here associated in chemical combination. So far then from shaking his confidence, should not this consideration rather urge him to subject to the test of clinical experiment the remedial powers of the article, and determine for himself its real value as a therapeutical agent.

That an instrument of such potency will be exposed to the abuses incidental to ignorance and empiricism, is sufficiently indicated by the history of tartarized antimony, of quinine, and of every valuable accession to the materia medica. But the mischief wrought by such

weapons in the hands of the charlatan, will never deter the scientific physician, whose skill knows how to wield them efficiently in behalf of suffering humanity.

The writer cannot forego this opportunity to tender his acknowledgments to Drs. MACNEVIN, MOTT, VANDERBURGH, WILSON, MASON, BORROWE, and WALLACE, of New York, and to Dr. JACKSON of Philadelphia, for their aid in proving the powers of the article the subject of this paper. Some of these gentlemen, within the last few months, have used this medicine extensively in their practice, and fully concur in the writer's views respecting its wide application to disease, as well as its mode of administration.

New York, December 30th, 1833.

ART. XI. *Note of the Post Mortem Examination of a Female who committed Suicide almost immediately after Coitus.* By H. BOND, M. D. of Philadelphia.

IN May, 1827, I was invited by Dr. SAMUEL TUCKER to examine, *post mortem*, the body of a female who had destroyed herself with laudanum. She was apparently between eighteen and twenty years of age, well-formed, and in good health. She passed a night, or the most of it, *in coitu* with a young man, and before morning swallowed a large quantity of laudanum. Dr. Tucker was called to her in the course of the morning, but so late that all his efforts to restore her were ineffectual. The body was opened the next morning in the presence of Doctors TUCKER and MEIGS. Neither the head nor chest were opened. The viscera of the abdomen, as far as they were examined, exhibited no mark of disease, but the odour of laudanum was very strong in the stomach. I removed the internal organs of generation, and took them home for examination.

The uterus was larger than I had ever before seen it when healthy and unimpregnated, and its colour indicated more vascularity. The ovaries were large, extremely vascular, and situated nearer the uterus than usual. Instead of hanging loose at the distance of an inch or more, they appeared to be drawn so close to the sides of the uterus, that there was scarcely the space of a quarter of an inch between them. The Fallopian tubes were very vascular, so much so as to give them a firmer and more fleshy appearance than usual, and instead of ending in loose, floating fimbriæ, appeared to terminate by an

union with the ovaries, and to be very tortuous on account of the short distance between the ovaries and the origin of the tubes. On the surface of the ovaries were seen a few small vesicles of the size of shot, projecting little or none beyond the surface of the gland, and containing a slightly turbid fluid. From the ovaries and the fimbriæ several small vesicles were seen hanging by extremely delicate pedicles, from one-fourth to seven-eighths of an inch in length. They looked like pyriform drops of mucus, a little larger than the seeds of grapes, covered with an extremely delicate pellicle, which appeared to constitute the fibrils by which they were suspended. Upon cutting open the uterus, it was found to be thickly coated with a substance having the appearance and the strong peculiar odour of semen. Some of this substance was in the neck of the uterus. The Fallopian tubes, (at least the one which was laid open,) contained apparently the same matter, but whether it possessed the seminal odour was not ascertained. Upon wiping this matter from the lining membrane of the uterus, it was found to be of a vivid red, as red as the conjunctiva in acute ophthalmia, or as if it had been injected with vermilion.

Philadelphia, December 16th, 1833.

ART. XII. *On the Anterior Membrane of the Eyeball.* By W. C. WALLACE, M. D. one of the Physicians to the New York Northern Dispensary.

WHEN the eye of an ox or a sheep is immersed in boiling water, the anterior membrane coagulates, and it may be separated from the cornea and that portion of the conjunctiva which it covers. The conjunctiva does not coagulate; it cannot be traced to the cornea, but seems inserted into the sclerotica. When the eye is macerated, and the conjunctiva dissected from the eyeball, the conjunctiva may be cut through at its attachment, and as the anterior membrane overlaps it, there may be the appearance of continuity of structure; but if the separation be commenced on the cornea, and be carried to the conjunctiva, the corneal covering will be found to overlap it for a short space, and to be a distinct membrane, as it can be completely separated from it. It may be compared to a small watch-glass, a little larger than the cornea, and placed over it and the contiguous conjunctiva. In the ox, the sheep, and apparently the negro, its surrounding border is a dark-brown muco-albuminous ring, and a mucous continuation of it extends to the edges of the eyelids. I am not

sure if this continuation be different from the mucus of the conjunctiva, yet it sometimes seems to contain membranous fibres which are more evident towards the internal angle. The most distinct way of showing the anterior membrane of the eyeball, is to macerate an eye for some weeks in vinegar, and then cautiously to immerse it in boiling water, to harden what is albuminous, without corrugating the other coats.

The description of the conjunctiva, by writers on ophthalmology, is, that it is a membrane *sui generis*, partaking of the diseases of mucous membranes and of those of the skin. By almost every writer on anatomy, even the most modern, it is described as lining the eyelids and being reflected over the eyeball. Some say that there can be no doubt of its covering the cornea, for that serpents and other animals that shed their skins, shed the conjunctiva, and that it passes over the cornea. This I consider no proof that they are continuous.

BAYLE states that the conjunctiva covers the anterior part of the globe of the eye as far as the circumference of the cornea, and that the cornea is covered by a peculiar species of epidermis distinct from the conjunctiva. MECKLE, CLOQUET, and CHARLES BELL, in some places, seem of the same opinion, but none of them proves the last circumstance. Cloquet refers to a memoir of Dr. RIBES, in the *Bulletin de la Faculté de Medecine*, 1814, No. 4. This memoir I have not been able to find.

If the cornea were covered with the conjunctiva, it is likely that vision would be impeded by mucus, and that the chemosis, in severe catarrhal or gonorrhœal ophthalmia, would pass over its surface. The existence of membranous fibres in the mucous layer covering the conjunctiva, and which seems continuous with the albuminous layer covering the cornea, has altered my views of the pathology of pterygium, a disease which does not appear to be seated in the conjunctiva. In strumous ophthalmia, pustules more frequently occur on the verge of the cornea than on any other part of the eye, and the loss of substance of the anterior membrane is as easily regenerated as that of the cuticle.

I may here relate another circumstance. When an eye is immersed in dilute nitric acid, the cornea is corroded; but no effect is produced upon the lining membrane, or that between the cornea and the aqueous humour. This is a very important fact in the economy of nature. When the cornea is ulcerated, the lining membrane resists as long as possible the destruction of the organ, and I am sure often preserves it by delaying the ulceration till the sore is disposed to heal either of its own accord, or by the application of remedies. I

have seen different oculists of eminence evacuate the aqueous humour by opening an unaffected part of the cornea, to lessen the pressure of the humours, and so retain the iris and other parts of the organ *in situ*, by preventing their protrusion through or adhesion to the ulcerated opening.

New York, December 27th, 1833.

ART. XIII. *Sequel of the Case of Axillary Aneurism and Ligature of the Subclavian Artery, inserted in Vol. III. p. 28, of this Journal.*

By EDWARD W. WELLS, M. D. of Maracaybo.

IN the month of December, 1828, eight months after the operation, the patient paid me a visit. He said that his arm felt rather weak, and that when he used it freely, as he sometimes did for the purpose of chopping with a *machete*, or sugar-knife, it was slightly painful. The varicose appearance of the integuments in the vicinity of the shoulder no longer existed. The pulse was very perceptible, both in the radial and ulnar arteries of the affected side, but much weaker than in the opposite limb. The tumour under the clavicle and in the axilla remained about the same as when I last saw him, with the exception of a slight thrilling kind of pulsation, which was perceptible in it, and which was considerably diminished, but not entirely suppressed by compressing the brachial artery on the distal side of the aneurismal enlargement. I recommended him to reäpply pressure as he had done previously to the operation, and to continue it as long as he should perceive any pulsation in the tumour, restricting himself at the same time to a low diet, and avoiding exercise with the affected arm.

I did not see him again till August, 1830, when I met him by accident some miles from the city. The axillary portion of the tumour had entirely disappeared; and under the clavicle there was merely a slight protuberance, in which no pulsation was perceptible. The pulse at the wrist was stronger than when I last felt it, but still much weaker than that of the left arm. He told me that he felt no inconvenience in the arm or shoulder, but that it was weaker than its fellow. His general health was unimpaired.

This patient died in the month of March, 1831, consequently two years and eleven months after the operation. His disease, as I was informed by Dr. IRWIN, who attended him, was an ulceration of the bladder. Dr. I. says that the right shoulder remained in the state which I have described.

Maracaybo, March 19th, 1833.

MEDICAL EDUCATION AND INSTITUTIONS.

ART. XIV. *On Medical Education.* By SAMUEL JACKSON, M. D. Assistant Lecturer to the Theory and Practice of Medicine and Clinical Medicine, in the University of Pennsylvania.*

THE commencement of man's existence is in the feebleness of infancy; he passes through the light-hearted and thoughtless period of childhood and youth which powers gradually expanding, acquires in manhood the development of his energies, ripening into the fulness of maturity; and, in his natural career, sinks into the decrepitude of age, when, the forces of nature expended, he fulfils the law of his destiny—the mandate of his Creator—terminating his being in this world, by the dissolution of his mortal frame.

In this progress of individual being, we are presented with the prototype of all human relations.

The social condition of our race, in its beginning, was powerless and dependent. It has no memorial, for it was incapable of perpetuating its events or its opinions; all are buried in the profound obscure. It opens in a period of fable and superstition: for ignorance rashly undertaking to explain every thing, is wild and unregulated in its conjectures, which it substitutes for facts.

The ungoverned savage is gradually moulded into civilized man; the rude polity of barbarian tribes is slowly shaped into the complicated machinery of refined and cultivated communities: and it is in the revolutions of distant ages alone, that we can rationally expect, that the perfect civilization of man—the exaltation of his intellectual and moral faculties—the ascendancy of his reason over his brute passions and organic instincts,—will be finally consummated. For, although we are accustomed to account the present as a highly civilized state, it is impossible calmly and impartially to regard it, and not be struck with the numerous features of barbaric character and feudal origin, still stamped on the customs, opinions, and governmental institutions of the age.

While the nobler and more exalted faculties are made subservient to the inferior and abasing; while violence is the substitute for reason,

* Delivered as an Introductory to the Course of the Institutes of Medicine, in the University of Pennsylvania, for the session 1833-4.

and blows and arms are employed as arguments; while differences of opinion and the collisions of interests are determined on the battle field, by the conflicts of opposing hosts; while right, and truth, and justice are interpreted, and decided by slaughter, havoc, and rapine; while the energies of society, the wealth of nations, and the force of governments, are directed, almost exclusively, to the devising and the perfecting of the means for the destruction of the race, and not to its education, its refinement, its moral and intellectual advancement—to the illustration of truth and the exposition of error,—boast as we may, impartial truth will pronounce, that, though a reasoning, man is not yet a perfectly rational being;—that, though less a savage, he has not yet entirely passed beyond the limits of the savage state. The destined perfection of which he is susceptible, can only be seen dimly figured in the far distant and obscure vista of remotest time. It can only be expected, when the good and the beautiful, emanations of divine truth, occupying the soul of man, the empire of reason will reign supreme, and he shall be the master, not the slave of his appetites, propensities, and passions.

For then, from long and profound cultivation, knowledge being immensely expanded and strictly accurate, false opinions will be rarely formed—and error, in the blaze of intellectual light, will scarcely find a spot wherein to harbour. Let not this conjecture be looked on as wholly visionary. Though the organization of man will always remain as it is, yet, as knowledge is progressive and capable of perfectibility, and man is what knowledge makes him, he is, through this medium, susceptible of a state of social perfection, of moral and intellectual exaltation, of which it would be deemed wild enthusiasm to utter the thoughts that rise before the imagination. For a moment let us endeavour to conceive what vast results would flow, if the enormous sums annually expended by the nations of the world in the prosecution of wars, the maintenance of armies and fleets, the erection and support of fortresses, and all the other means and appliances of destructive warfare, were appropriated to the cultivation of mind, the improvement of knowledge, the general diffusion of superior education, to the moral advancement of man—What, in the course of a few centuries, would he be? Certainly no more the creature he now is, than would be the savage of our wilds, could philosophic truth be made to penetrate the darkness of his intellect. Too surely the destiny of our race is not yet accomplished. But, this is a digression into which insensibly we have strayed, and from which it is now time to turn our attention, and pursue the more immediate subject of our discussion.

All the arts and the sciences, the creations of human genius, instigated by intuitive tastes or instinctive wants, exhibit the same order of progression. Rude and undigested in their origin, they tend towards or attain perfection with different degrees of rapidity—some arriving at their complete development, while others continue to struggle with the difficulties that embarrass their progress.

Our science presents this character. In its primitive state, it did not form the object of a distinct profession, but was, even as we witness often at the present period, a common pretension claimed by every one, based on the grossest empiricism. We are told by Herodotus, that the sick were often exposed on the highways, that the passers-by might suggest what means they had known to be successful under similar circumstances. Strabo relates that the same custom prevailed in Spain. More advanced, it became the appanage of the Priesthood, who acquired experience from the numerous sick who crowded the temples dedicated to the healing deity, from whose immediate agency they expected to derive succour, and to secure their safety.

Devoid of self-sustaining principles, medicine was compelled to seek support from collateral aids. For a time, it reposed in the embraces of Grecian philosophy, and was indebted for its fundamental dogmas to the doctrines of the various schools, constituting the speculative science of that highly-endowed race, and intellectual age. Passing thence to the modern era, medicine was plunged into the depths of darkness and superstition that engulfed the human understanding. Cabalism, theosophy, magic and astrology, furnished the basis on which it was erected. Escaping from these absurdities, it sought refuge in, and looked for assistance from the visionary speculations of the alchemists. It then became a department of physics and mechanics—was next allied to the wildest metaphysics, and connected with the rudest chemistry. It has been alternately a doctrine of humoralism, solidism, vitalism, and always more or less deeply imbued with dogmatism and empiricism.

From this imbecile dependency on other departments of science for its principles, medicine is now rapidly escaping. It has assumed in the circle of the sciences an independent station. It is forming the body of its science, looking for and attempting to establish its fundamental dogmas in the coördination of its own facts; first verifying the truth of its facts.

Medicine, you then perceive, gentlemen, long as it has been cultivated, is not a perfected science. Along with the civilization of our race, it lags far in the rear of that more glorious, it may be said,

ineffable condition, to which in the progression of time it will attain. You must not, therefore, in the pursuit of medical knowledge, repose implicit faith in the opinions, the dogmas, or even the facts you will learn. It is better to regard every thing with the sceptic's eye. Our science is one of investigation. You are here for the purpose of learning all that is known of medicine at the present day; of being taught all that investigation, carried up to the actual period, leads us to believe is true; but you are not bound to receive it as proceeding from the hallowed oracles of inspired truth.

In these halls you appear for the first time on the stage of life, in a new character. You have ceased to be scholars and pupils of scholastic institutions, with duties limited to prescribed tasks which you are bound to learn. You are the disciples of a high philosophy, at the discussions and investigations of which you now assist, and in which, finally, you are actively to partake. New duties now devolve on you, pertaining to your new character.

You have arrived at an epoch of life. You have terminated one era—you are at the commencement of another. The period and education of youth are closed—the education of manhood and the pursuits of mature life now open on you. The first should have been preparative and initiatory of the last. They are not the same in nature or intention; they must not be confounded together; and it may be important to you, in the commencement of your new career, and greatly facilitate your advancement, to place you in your proper position, and on the best route to be pursued; to point your attention to the differences between the two, and to direct your reflections on the nature of that you are now engaged in.

Education, it is too frequently, yet erroneously supposed, is the imparting of knowledge; and schools and teachers are believed to be the media of its communication—the means of its acquirement. Let any one, however, reflect, how little of the immense stores of knowledge, is, or can possibly be acquired in courses of instruction, and he must be satisfied, that such is not, cannot, and should not be the exclusive, or chief end of education, and should not be attempted. A higher and more important purpose is to be accomplished. The faculties of the understanding require, like all other faculties, for the development of their energies, an appropriate training; each of them is to be invigorated—the senses, perception, memory, reason, judgment,—by the exercises fitted to each; and above all, the intellect should be disciplined in those operations by which alone it is enabled to acquire sound knowledge, and is rendered capable of its noblest and greatest effort—the power to distinguish and receive truth.

These are the great purposes to be aimed at in an education truly philosophical. It is not the mere possession of the senses and faculties of the mind, that confers on man the privilege of thinking, of reasoning, of judging, of knowing: he must be instructed to employ them aright; he requires to be taught to think, to call his intellect into action, to reason, to reflect, to judge, to know for himself. The number of mankind who thus act is small indeed. In the language of the psalmist it may truly be said of them—"Eyes have they, but they see not; they have ears, but they hear not;" and it may be added, with understandings, yet they understand not.

The duty of thought is almost universally abandoned to a few. The dicta, the phrases of some worshipped leader, not always the most meritorious or deserving of confidence, and which often are not even comprehended, are implicitly adopted by the multitude,—are made the rule of conduct, the standard of excellence, and "anathema" is cried upon all who pronounce not the shibboleth of a sect, or do not answer in the watchwords of contending factions and of wrangling schools.

The history of mankind presents a series of delusions, that have ruled his intellect, that have made him a slave to the passions, the prejudices, or the designs of a few; that have stifled knowledge and extinguished truth; that have arrested the progress of civilization, and almost created a doubt as to the universality of the attribute of rationality. Men have met and fought in fields of carnage, have persecuted, have destroyed one another, like ferocious animals, for differences of opinions and dogmas, maintained with a blind fury, which, in subsequent periods, are universally rejected as too gross for credence. These are the fruits of error—the consequences of a false and defective system of education, leaving the mind undisciplined and incapable of acting for itself, devoid of the means, habits and processes of ratiocination; its irregular energies abandoned to the direction and excitement of those who are disposed to employ them for their own advancement and interests. Man, then, loses his individuality, and is but a component part of a physical mass, moved and governed by exterior agency.

The important object in education, should be to avert this unhappy state of intellectual nullity—to form the habit of investigation, to conduct the mind to the comparison of things, estimating their similitudes and differences, arranging them in their respective and appropriate classes, and expressing them in precise formulæ. A just education is much less the communication of knowledge, than instruction in the methods of acquiring knowledge—by examination and re-

flection—experience and induction. Whoever is desirous of mastering the difficulties of a science, must rely chiefly on his own instruction—dependence on others, will ever throw him into a sciolism, always inefficient, often contemptible. He must labour in his own vineyard, who would be rewarded with abundant harvests, and would gather the choicest fruits.

The education you have just completed, it has already been remarked, is preparatory. It embraces two objects: the first is language, or the signs representing or communicating simple ideas, that is, words; and the artifices by which words are combined, arranged and modified so as to express the operations of the intellect in the formations of reflected and compounded ideas—the distinctions between them, and the formulæ for their expression—or what is called grammar and logic. This department of education is fundamental—essential to the completeness of every other; is vastly important to a perfect method of study, and the acquisition of knowledge.

It is language that pours the mind of one man into that of another. It paints the thought, gives it a palpable existence, an individuality, by which it may be seized on and appropriated. It is in language that the mind finds immortality, while the body perishes in the dust. It is language that preserves to us the thoughts of the great, the learned, the wise, the good of all ages; making them heir-looms of the race, descending from generation to generation, transmitting lessons of wisdom and of virtue, enlightening, instructing, benefiting, elevating, and improving their species. But, for the communication of ideas for useful purposes and an accurate comprehension of ideas, language must be the exact representation of the idea; it should be clear, precise, simple, and the value of each word be express, limited, and definitely explained. Many of the disputes that vex mankind, and fill the world with discord and embittered feelings, turn merely on words or phrases, taken, without the parties being aware of it, in meanings entirely different. Words, as Burke most justly observes, are things.

A second object embraced in this preliminary education, is the power of numbers—the equations of magnitudes—the laws of the forces imparting motion to bodies—that is, arithmetic and algebra, or calculation; geometry and mechanics, or collectively, mathematics in the fullest acceptation of the term.

Education thus composed, is a series of exercises adapted to every faculty, by which, systematically pursued, the organization of the mind is corroborated, and its powers fully displayed. By these exercises are its wild and irregular impulses restrained, while they con-

troul its fitful and wasteful sallies; they direct its forces and regulate its movements by a severe and exact discipline; they harden it to toil, and qualify it for application; they prepare it to grapple with the abstrusest subjects of philosophy, and for the achievement of noblest conquests over opposing difficulties; they arm it with power to drag from the deepest recesses of nature her most hidden secrets, and crown its triumph with the never-fading chaplet of immortal truth.

Such has, or should have been, the preparatory education, introductory to the scientific and profounder education, you are about to commence. The more complete this has been, the more thoroughly you have been imbued with its principles, and have deeply imbibed its spirit—the fewer difficulties you will encounter to embarrass your course; the more easily you will clear the obstacles that oppose your progress; the loftier the station you will be enabled to reach in your profession; the brighter your fame; the richer your reward.

You must remember, gentlemen, that it is not a mere art—a collection of practical maxims and precepts, handed down from generation to generation, requiring but a limited degree of intelligence to put into successful operation, which you come here to commit to memory as a scholar does his rules. You devote yourself in these halls to the acquisition and cultivation of a science—of a deep philosophy—composed of facts developed by painful and laboured investigation; and principles, determined solely by critical analysis and rigid logical induction, and which can be applied only under the guidance of extensive information, and a sound, discriminating, and disciplined judgment.

The course of study you have selected, and on which you now enter, is a medical education. You propose to perfect yourselves in the knowledge of the most difficult of the practical sciences, created by the inventive genius of man, for his defence against the most desperate of the evils that assail his existence, and blast too frequently his prospects of happiness, in this state of being. It is difficult, from the immense multiplicity, the complexity, and obscurity of its facts, and the recondite nature of its principles. You aspire to the attainment of a most gifted character, and the assumption of a deeply responsible office. You seek to become a practitioner of medicine—the seer who looks into, comprehends, pronounces on, and regulates the laws and phenomena of vitality—the pilot who guides the frail bark of human life in safety through the myriads of difficulties that beset, the perils that environ, and the dangers that threaten it on every side.

Let us now, gentlemen, survey the field of your future exertions; the subject which is to be the great concern of your hereafter exist-

ence. It demands your most deliberate consideration. Contemplate it well—comprehend thoroughly its nature. You will, then, be enabled to understand, adopt, and pursue a system, that will greatly lighten your labours, abridge the period of your exertions, and confer on you a proficiency, full and complete.

Medicine, as every other science, is divisible into two portions, and may be treated in two different manners: the one historical, the other philosophical. The first, or historical division, embraces the progress of the science, in each department, from its inchoation to the present time, and exhibits the gradual evolution of facts, the various speculations, hypotheses, theories and systems, that have alternately prevailed, and enjoyed a short-lived reign. This information is of the greatest utility. It exhibits a view of the errors of those who have preceded us; and warned by their example, we are taught to avoid the mistakes that proved fatal to them; we are made to witness the struggles of powerful intellects, shackled by the bondage of false methods, vainly attempting to grasp at truth. It presents us with all that has been tested by the ordeal of time, of observation, and experiment; we learn to distinguish the spurious and false in fact, to know the approved and substantial; we are spared the mortification of proposing as original, what has been long known, and of adopting as true, errors refuted, condemned, and exploded. The immensity of the details comprehended in this division of the science, necessarily excludes them from courses of lectures. They are not to be found in the text books and manuals, too frequently alone perused by the student, and the sole library of the practitioner, and can be acquired only by a diligent review of the standard writers of the science.

Although this first or historical branch, is exceedingly useful, and by no means to be neglected, it is less important, especially in prelections, (which ought to be chiefly exegetical of a science,) than the second or philosophical division.

In this branch, are included two objects—1st, principles—2d, the verified and incontestible facts of the science. On a knowledge of both, depends its successful application to practical purposes. The principles of a science are its animating spirit; the only rational object of its cultivation is their establishment. Facts are to be investigated and verified by observation and experiment—the only means to be relied on. But the attestation and verification of facts, are no otherwise useful, than as they enable us to determine principles, and to institute theories; and, if we err in theories, it is, either that the facts are imperfectly known,—or, what is furnished to us as facts, are false. When facts are confirmed, a philosophic genius never fails

in its generalizations, and soon establishes a sound theory of universal applicability; offering the solution of myriads of phenomena. A genius of this character, immediately perceives the similitudes and dissemblances of things; embraces, analyzes, and distinguishes the slightest particularities of objects; comprehends the entire mass in its view; recognises the points in which many million of phenomena meet in perfect accordant; and deduces, from a study of their general relations, their reciprocal connexion and mutual dependence, the causes or laws regulating their production. With this concentration of the faculties, directing the senses to the perception and examination of substantiated facts; their arrangement and classification under appropriate heads; their generalization, or reference to general points of view, are readily accomplished. The facts are then incontestible, the theory is completed, and the science rapidly tends to perfection, as a speculative philosophy and a practical art.

Principles and facts, in a science, are most intimately associated. The facts, ascertained by observation and experience, are the materials of the science; but they are not science. It can have no existence until principles are evolved, or theory is perfected. The mass of facts made known through the medium of the senses, must be arranged in order by the reflecting powers of the mind; and the connexion of causality must be discovered among them, before they can be recognised as constituting science. Facts alone, are a chaos susceptible of form, but a mere void, until the creative spirit of philosophy breathes on the irregular mass of commingled elements: then, light and truth burst on the profound obscure; form, existence, order, harmony, rise successively into being, and science owns its birth.

In all science we observe, then, that principles are its beginning, and its end; and facts are to be studied, observed and verified, for no other purpose than the elucidation of principles, the only unerring guide to a correct practice. He who would undertake to make a practical application of precepts, yet is utterly ignorant of principles, would unquestionably commit the most melancholy blunders, when unexpected complications created the necessity for new combinations; and in medicine, such complications and exigencies, requiring promptness and resource, are of daily occurrence. The first object, therefore, in the study, and in the tuition of a science, it is obvious, should be, the knowledge of its principles. Yet, it is unhappily true that, in all the systems of education, principles, if not entirely contemned and denounced, are the last to be thought of; and when they become the subject of investigation, the mind, surcharged with pre-

judices, and stuffed with conceits, is incapable of receiving simple truth.

“What sentence,” to use the language of a celebrated writer, “shall we pronounce on a system, which thus reverses the clear and evident order of things? which overloads the memory with facts, and these frequently of a doubtful description; while it leaves the mind entirely in the dark with regard to principles, that would alone render the heterogeneous mass of any advantage or avail.”

It errs still more grossly, in instilling too profound a reverence for celebrated names of past times, setting up authority for truth instead of truth for authority. It bestows learning, but not wisdom; and “learning without knowledge,” as the same eloquent and judicious writer remarks—

“Is but a bundle of prejudices; a lumber of inert matter, set before the threshold of the understanding, to the exclusion of common sense. Pause for a moment; recall those cotemporaries who are generally considered learned men and well-informed. Tell me, has their information or their learning made them a whit the *wiser*? if not, then it is only sanctified ignorance. Tell me, if with them, names are a sanction for opinions; authorities are the equivalents of truth, and quotations the representatives of axioms. Then, all they have learned only serves as an excuse for all they are ignorant of. The great, the fundamental error of education, is to occupy the mind with antiquated authors, and then to try the principles of the present day, by the authorities and maxims of the past.”

This method is most injudicious and unwise. Man commenced his social existence, in all its relations, in ignorance and barbarism. He is endowed with faculties that empower him to improve, to ameliorate, to elevate his condition. But his first steps, in the profound darkness which surrounds his intellect, are uncertain, wandering, and faulty. He escapes from the errors inevitable to his state, by slow degrees; he breaks from the entanglements of false opinions and systems, only with painful and protracted struggles. The older are opinions, facts and doctrines, the more probable they are untrue, the less reliance is to be placed on them, unless confirmed by modern observation, experiments and principles. It is not sufficient to sustain an opposite opinion, that instances may be cited of powerful intellects that divined some scattered truths, verified by recent investigations. They were happy guesses, treasures accidentally found, and not the result of systematic proceedings, which can be adopted with advantage. As well might we be summoned to bow in reverence and confess the inspiration of the Pythoness, because, from the tripod, in her wild delirations, she uttered occasionally the words of truth.

Dismiss, then, gentlemen, from you, undue reverence for mere authority. Let it not take deep root in your minds, or they will be incapable of admitting new truths, conflicting with adopted opinions. Scepticism is no crime in medicine. We acknowledge no oracle but nature. Whatever doctrine you find in books, or hear in lectures, subject it to the ordeal of observation, experiment and reason. If it cannot be referred to some established principle, should you not dismiss it as unsound? at least hold it in doubt for subsequent consideration?

The course that will be pursued in these lectures, will be the reverse of the ordinary method. Passing by the mere learning of the science, the doctrines and opinions of past periods, we shall confine ourselves to knowledge—to that only which is practically useful. Our exclusive object will be, as alone essential to a course of instruction, the doctrines of the present day, the verified facts and the principles of the science. After the completion of the course, then, having access to the well-stored libraries of this city, rich repositories of all the treasures of medical literature, you can glance over all that has passed away, as researches chiefly curious, yet not without a measure of utility.

I have dwelt with no little emphasis on facts and principles, as alone constituting knowledge, and forming the entire end of science. But you have a right to demand, from so much stress being laid on these points, what is meant by facts, what are principles? It might, to the superficial, seem strange, that any doubts could be entertained on these subjects. Yet, I am persuaded, that, simple as they appear, they are not properly understood; otherwise it would not so frequently occur, that what is given for facts, are not facts; and what is enunciated as a principle, is not a principle.

What, then, I mean as a fact, and wish so to be understood when I employ the term, is a simple, indivisible phenomenon, presented by a natural object, ascertained by the senses from careful observation, attested by the experience of thousands, the same in all ages, and verified by reiterated experiments. That alone which embraces these conditions, can be regarded as a fact in positive science, or be admitted in a strict philosophy. How few of the facts of medicine have been of this character. A single observation occurring in a single case, often a mere casual incidence, is hastily promulgated as a fact, and from it, is rashly deduced a practical precept. This loose unphilosophical proceeding, has overwhelmed the science of medicine with false facts. It is they which have retarded its onward march of improvement, infinitely more than false theories. On this point

we have the testimony of Dr. CULLEN. In medicine, observes the Edinburgh professor, there is infinitely more of false facts, than false theories.

Having shown what is to be understood by a fact, let us now proceed to ascertain what we mean by a principle.

The phenomena of natural bodies, exhibit common points of resemblances and dissimilitudes, ascertainable by the senses. They are thus distinguishable from each other, and are to be separated into various divisions according to their nature. All the phenomena of any department, which in their essential circumstances are exactly the same, have the same cause, and constitute but one fact, which is the first in that series of phenomena. This primary fact is, then, a generalization of innumerable facts; the concentration of a thousand facts into one; and this general fact is a principle from which all the series of phenomena below it, depend immediately or secondarily. Each phenomenon is in itself an effect of one which has preceded it, and is a cause of that which succeeds to it. Phenomena, in this manner, form numerous series, and are capable of being expressed in formulæ. These formulæ are laws, and when they are completed by an exact arrangement of the phenomena, each in its proper connexion, then a science has attained its perfected condition, and its practical calculations and proceedings are susceptible of application with unerring certainty. The progress of a science towards truth, is always the reduction of a multiplicity of facts to a few general facts or principles; from confusion and complexity, to clearness and the simple. We may receive it always as *prima facie* evidence, that the route we are pursuing is the road to truth, and be induced to persevere in our course, when we find such to be its results; that we are escaping from a multiplicity of details, obscuring the sight, and opening on a less obstructed view; that the immense host of facts in which we found ourselves lost and bewildered, gradually settle down into regular form and order.

It has been the design of the preceding remarks, to enforce on you, that the acquirement of knowledge, and the discipline of the mind in its acquisition, are the main purposes of your present education, and should govern the courses of your instruction. To remove all obscurity with respect to my views or mode of understanding these subjects, it is now incumbent on me to make to you a declaration of what I regard as the proper objects of human knowledge; the subjects alone embraced in scientific perquisition.

The universe, of which man is a component part, is composed of innumerable bodies, each endowed with or manifesting certain speci-

fic properties, and holding with each other positive relations, and thus have the capacity of producing phenomena. A knowledge of the existence of these bodies, and consequently of the universe, is derived from the perception of phenomena by the faculty of sensation, with which man and other animals are endowed. Without the senses to perceive, existences would be unknown; the creation itself a void; the harmony, beauty, and order of the world thrown away, having neither object nor design. It is the faculty of sensation that makes creation what it is; and here we are presented with one of the most beautiful instances of the universal harmony pervading the great works of the Almighty Creator. We know the bodies of the universe, because their especial properties possess special relations with some organ, external or internal; and excite in the external senses, the specific phenomena of sight, of feel, of sound, of taste, of smell—or in the internal senses, awaken perception to the impressions they create, disturbing the state of being or functions of the organs. Knowledge, then, is and can be nothing else than the appreciation of phenomena by the senses, and the determination of their various relations and connexions, by observation, experiment, and rigid induction.

Diversified as are the forms, and different as are the properties and characters of the bodies of the universe, none are entirely independent. The whole are connected, act and react on each other, producing especial movements and particular phenomena, according to their distances, the volume, form, and disposition of their atoms or particles. Throughout the mighty chain of existences, each link of being is subsidiary to the other. The universe, or bodies composing it, thus constitute an immense extended whole, possessing the most perfect unity, incapable of the slightest dis severance in any part, without a fatal shock to all.

“From Nature’s chain whatever link you strike,
Tenth, or ten thousandth, breaks the chain alike.”

During the influence of the theological domination, which in a barbarous and darkened period of society, seized on and subjected to its controul, every species of education, man was separated as a distinct being from the rest of the universe.

In pride and vanity, it was taught, that for him alone was the universe made; he was the sole end and object of creation, with which he was connected only as its lord. Thus isolated, and falsely endowed with exclusive and peculiar privileges, his organization was a useless research; the sacred form must not be mutilated; it was sac-

rilege to study this sanctified being, in the same manner, and subject his composition, structure, faculties and actions to be investigated and explained, by the same methods, and on the same principles as those applicable to other beings. A just philosophy has humbled these idle and presumptuous pretensions; it has shivered into pieces this pageant idol of human pride and antiquated ignorance; and while man is recognised as the most complete and perfect type of organized beings, proceeding from the hand of the Creator, he has nothing distinct from them, excepting his more developed organization, composed of the same elements and materials of which all are constituted, even to the lowest of animated beings.

The philosopher-poet beautifully expresses the idea—

“Nothing is foreign; parts relate to whole;
One all-extending, all-preserving soul
Connects each being, greatest with the least;
Made beast in aid of man, and man of beast:
All served, all serving: nothing stands alone;
The chain holds on, and where it ends unknown.”

In studying man, therefore, the particular object of our science, the same method of investigation, of acquiring knowledge and of philosophizing, is to be pursued, as with the other objects, even inanimate bodies of the universe. That is, we are to determine by observation, the phenomena he manifests in the various organs composing his economy; we are to arrange or coördinate these phenomena in the order of their production and mutual dependence, for each organic element, tissue and organ; we are to form a just valuation of these phenomena under a rigid and critical philosophy; and finally, to express them in formulæ of the greatest simplicity and precision.

Such is the nature of the knowledge required in a philosophical education of our science. The means for the acquirement of this knowledge, cannot be indicated to you at this time, but will form the subject of a distinct lecture.

The education I have pointed out in the preceding part of this discourse—as that which is demanded by the present improved state of science generally, and particularly of our science—is very different from that which has heretofore prevailed. I shall not enter into any argumentative advocacy of it. I shall content myself with resting it on its intrinsic and self-evident merits, and trusting to your good sense to appreciate its just value. I cannot, however, avoid exposing to you the opinion of a very able lecturer, engaged in medical instruction in the metropolis of Great Britain, on the present system of Medical Education. It will be an evidence to you that I am not

alone in the opinion I have expressed; and am actuated by no selfish and sinister motives in this denunciation of the defective character of our system of instruction; but am influenced by a thorough conviction of its inutility for the attainment of the great end of a complete medical education, such as is worthy of the science, arranged on a philosophic basis, calculated to advance and perfect our knowledge, to elevate and dignify our profession:—

“The loose, immethodical, and unphilosophic manner in which medical education has been, and is too often taught, is one of the leading obstacles which have checked its progress towards the completeness of a science. The observer of a few facts, the physician of a few patients, assuming the importance of philosophers, soon weary with tardy and laborious investigations, and find it an undertaking of more easy accomplishment, to guess at and generalize upon subjects which require much time and talent to investigate. Hence does it happen, that more *discoveries* are often made during one year, in medicine, than the labours of two centuries can consign to oblivion. The tedious process of watching attentively, comparing cautiously, and inferring slowly, is badly calculated for an enterprising speculator, who cultivates his profession as the mechanic does his trade, and whose zenith of ambition is accumulation of wealth or the acquisition of friends. A few months spent in hearing a few lectures; as much study endured as is indispensable to escape public censure before a trifling ordeal; and as much money paid as can procure a few manuals, and secure the *entree* to the prescribed round of classes, are deemed by most students—ay, and by most parents too, a sufficient preparative for the exercise of one of the most recondite and responsible professions to which an enlightened mind can be devoted! The effects of such a jejune system of education have been a long time felt, but are only beginning to appear. Now that philosophy has overstepped the walls of chartered schools and sequestered colleges, and walks abroad in open day through every class and section of society; now that the human understanding will be no longer trammelled within the fetters of prejudice, and will not submit to the unsupported authority of imposing titles and more imposing privileges, the consequences of such a wretched system of medical instruction, cannot now remain unnoticed by the public, should even the faculty still feel inclined to encourage it. Our surgeons and physicians must cease to make merchandize of physic; medicine must be taught and studied as an inductive science, rather than as a mysterious medley of antiquated jargon; and disease must be studied and treated more in the spirit of enlightened philanthropy, than with the mercenary views of a hireling.”

To this I will subjoin a paragraph, extracted in a late number of the *Lancet*, from a communication in the *Times*, animadverting on some great absurdities committed in the evidence of several teachers, professors, and physicians to hospitals in London, in a trial on a life insurance case:—

“We never read any reports where medical evidence is given, without blushing for the state of *medical science in England*, and being convinced that

this branch of education is defective, not only as regards the inculcation of sound principles, but even in the application of undoubted facts to recognised principles. Certainly we are yet to lament the want of a well-governed school of medicine."

What, it may be inquired, is the remedy to this state of things? A reform certainly. But, in rational and highly civilized society, where the passions and interests of man, are not permitted blindly to rule, the first steps to reform, are to awaken to consciousness of existing defects; to produce a feeling of the necessity of reform, and a deep conviction of its necessity, in those whom it most concerns. The inventive talent of man, then, soon devises the best and most appropriate remedies for the evils he endures. He looks abroad, discovers the defects that defeat his schemes of happiness and amelioration; that oppose obstacles to his progress to a more improved condition; and escapes from their controul, by providing a better and more perfect system. If unopposed by arbitrary power, deaf to argument, and impenetrable by remonstrance, the change is wrought slowly but surely; is the work of time, and of reason; is more finished and perfect in its details, and is accomplished in peace and safety. Improvement is effected; amelioration has been attained; knowledge has advanced; and society, benefited in its state, marches onward to its destined perfectibility.

But if resisted in his earnest appeals for redemption from an oppressive condition, and in his aspirations for a better order of things, by inflexible prejudices, unyielding and pertinacious selfish interests, then, in political society, arise the excitements and storms of the passions, in whose wild tumults reason loses her ascendancy; rebellions and revolutions burst forth; the frame of civil society is rent and torn in the fierce collision; physical contests decide the questions that moral considerations, calm and rational deliberations should regulate, and can alone bring to a felicitous conclusion. In the rude commotions thus excited, and in the shock of conflicting factions, desolation is the substitute of reform, and in the place of improvement, we look aghast on a scene of ruin and destruction. The philosopher weeps over his blighted prospects of human perfection; the philanthropist sinks in despair.

The improvement and reform which the medicine of this country impatiently awaits, do not consist in the formation of *new schools*, formed on the models of old institutions, treading in the same worn-out paths, and perpetuating ancient errors and systems. It requires an entire and new reorganization of medical instruction, elevating it to the level of the science that has been lifted on the rising tide of

improvement far above the base where it was originally laid, and now nearly submerged by the whelming flood. It is a work that will never be accomplished by the rivalry of personal interests. It demands for its accomplishment the abatement of old courses, now too much considered, to their proper station; the introduction of new subjects, new branches and departments, of modern discovery and creation, and which are now composing the body of the science, yet which, unhappily, are so little known among us, that their names even to many sound strangely on the ear. With these changes, the prolongation of the period of instruction is essential.

It is true, that in such a change, new sacrifices, new duties, new tasks, new labours will be imposed on the student. But with them will come augmented honour, more brilliant success, higher consideration, and greater rewards.

Society is awakening to the true nature of our science, and more justly estimates the merits of its professors. Medical skill is not a gift of nature or an accidental endowment. It is the result of a well-educated and disciplined mind, acting on comprehensive stores of knowledge; and knowledge is the fruit of laborious application and incessant research.

Lessen your exertions now, refuse to meet and overcome the scientific difficulties of your profession, preferring inglorious ease to well-directed exertion, and you reap hereafter shame; sink into an humbling mediocrity, from which you never rise to fortune or to fame.

Can this reform be much longer postponed? I believe not. The interests of the profession—the immediate pecuniary interests of practitioners, are too deeply implicated, to admit that things should long continue in their present state. It cannot be concealed, that public confidence in the knowledge and intelligence of the profession has been shaken—has been most materially impaired in some sections of the country. Every where does empiricism abound. In many districts it is warmly patronized and encouraged, not by the vulgar and ignorant only, but by the respected and intelligent; and, in one state, I believe, has been legalized by statute. The ancient Galenical empiricism, long supposed completely at an end, is, in part, resuscitated; if not with all of its olden frivolities, with those not less extravagant of modern date. Whence arises this state of things? It is not from the observation, too apparent to the public, of the inferior grade of medical instruction? Do they perceive that wide difference in the acquirements of the regularly-educated practitioner, and the empirical pretender, which should always distinguish them? In the regular practice, has not the treatment of disease too much degenerated into

a blind routine, pursued in nearly every disease, however dissimilar in nature? Can it be denied, but that the only difference between the regular practice and empirical practice, is a routine treatment of merely different remedies, and not always to the disadvantage of the empirical method? In an arithmetical estimate, I apprehend, in the long run, the calculation of chances, by either plan, may appear equal; and then the difference in cost, will decide the preference.

There is but one mode of rescuing our profession from so degrading a rivalry; and that is, to raise the medical instruction of our country to a level with the philosophic character belonging to our science. Let medicine be, what in reality it is, a science of calculation, of combination, of induction, the elements of which are deduced from the phenomena of organized beings, and the relations of exterior agents with them, and you rise so infinitely above the crude and incorrect proceedings of empirical art, that the intelligent and observant, can never be deceived by its vain boastings, or its illusory pretensions.

A radical reform in medical education must before long be undertaken. It is not to be our task—we have done our duty, in showing its necessity. It belongs to a rising generation—on you may and ought to devolve the important task of effecting it. It is the young, the ardent, the zealous, and devoted, who undertake and succeed in great and important changes; and no work of greater magnitude, of deeper and more lasting consequences, could crown your well-directed exertions. To erect a system of medical education on the basis of positive philosophy, would place under obligations to you of the profoundest nature, society, your country, and the world. There is no achievement more worthy the measure of rational and honest ambition, or would surround its successful result with a brighter halo of imperishable renown. Let this be your work and such your reward.

REVIEWS.

ART. XV. *Memoir of the Life and Medical Opinion of JOHN ARMSTRONG, M. D. Formerly Physician to the Fever Institution of London; Author of "Practical Illustrations of Typhus and Scarlet Fever," &c. &c. to which is added an Inquiry into the Facts connected with those forms of Fever attributed to Malaria, or Marsh Effluvium.* By FRANCIS BOOTT, M. D. Secretary of the Linnæan Society; Honorary Member of the Medical Society of Massachusetts. In two volumes. Vol. I. London, 1833.

THE circumstances of the life of JOHN ARMSTRONG, and the claim made for him to important improvements in the theory and cure of diseases, render a history of his life and opinions an object of no small interest to the profession. Neither the condition of his birth, nor the character of his early education, furnished indication of future distinction of any kind. We do not allude in this remark chiefly to the humble occupation of his father, as a glass manufacturer, for there are not wanting many examples of men who have risen from an origin much more unfavourable to an eminence far more elevated than ever Armstrong attained; nor to the fact, that at eight years old he could not read, and "was considered by his friends incapable of learning," for other stupid boys have turned out to be able and enlightened men. The unpromising circumstance in his case was, that he was ignorant and stupid, not for the want of opportunity, but for the want of inclination to learn. It was not that he had never been taught, that he was unable to read at eight years old, for he had been kept at school from an early age. His biographer attributes this ignorance to bad teaching; and bad indeed must have been the teaching that could not impart the power of mere reading in four or five years constant instruction; and he refers for proof to the fact that he afterwards learned with rapidity. In six months with a new master he could read distinctly.

"And," he adds, "after he found that he could learn, he studied the English language, Latin, Greek, and Mathematics; and having acquired a confidence in himself, his delight seemed to be to excel in every thing to which he turned his attention."

The truth seems to be that he was constitutionally indolent; with power of acquisition enough when he chose to apply it, but with little

disposition to make the application, except when stimulated to the exertion by strong and peculiar motives. At the age of sixteen he left Mr. Mason, at whose school he had made such progress, and was placed with a surgeon and apothecary. This situation, although he had shown an early inclination for the medical profession, he soon left, contrary to the wishes of his parents, and remained at home, passing, it would seem, an idle, desultory life for two or three years.

We have dwelt the more on these particulars, because we think we perceive in them strong traces of this same character in his subsequent life. Whatever may have been his acquisitions during his eight years with Mr. Mason, he surely did not acquire a love of knowledge. He learned the English language well certainly, for we have few better or even so good writers in medical literature; his Latin and Greek have been disputed. He had strong powers undoubtedly, both of acquisition and of observation. But he wanted the industry necessary to cultivate the former, and hence he not only never became, even a moderately-learned man, but acquired a disregard for learning amounting almost to contempt. And in regard to the latter, his powers of observation, he required a strong stimulus of personal interest or ambition to induce him to exert them effectually. When he exerted himself rigorously, both in youth, and in his after life, he made rapid advances, and produced important results. But his efforts were inconstant and irregular; and therefore his early acquirements were extremely imperfect, and his later productions incomplete. His great, not to say excessive confidence in his own powers, enabled him to meet any emergency into which he was thrown with little preparation but such as the occasion afforded; and thus he was led the more to disregard habits of steady application; consequently he postponed and neglected much that he was extremely anxious to have performed; so that although he seems to have cherished with some fondness the belief that he had made highly important discoveries in medical science, which should confer distinction on his name in all succeeding generations, at the last, he left it to a friend to record, as well as to publish, the matured version of those opinions in which his discoveries were contained, and which were to perpetuate his fame.

At the age of eighteen or nineteen Dr. Armstrong entered as a medical student in the University of Edinburgh. Here he was precluded by the narrowness of his circumstances from extending his studies beyond the course indispensably requisite to a medical education. As soon as he had obtained his medical degree, in 1807, he returned to Sunderland, his native town, and engaged in practice as a physi-

cian. The successful treatment of a wealthy and esteemed gentleman, to whom the friendship of a young university acquaintance had introduced him, gave him an early reputation, and established him at once in a valuable practice.

It was not until 1813, after he had been nearly six years in practice, that Dr. Armstrong appeared before the public as an author.

“His first publication,” says our author, “was a short paper on the brain fever produced by intoxication, communicated to the *Edinburgh Medical and Surgical Journal*, then edited by the late learned and excellent Dr. Duncan, jr. It bears date November 13th, 1812, and was published in the number for January, 1813. This was followed by another paper on the same subject, in the succeeding number for April, in the same year, in which a case is fully detailed, with some very judicious observations on the nature of the malady, which in the example referred to, invariably arose in the collapse succeeding to the excitement of spirituous liquors,” p. 11.

Dr. Boott adds—

“Having once ventured before the public as an author, he appears to have suddenly felt the ambition of arriving at distinction in his profession; for in this year, besides the papers alluded to, he contributed another to the same *Journal*, on cases of diseased cervical vertebræ; and in December he completed his ‘facts and observations relative to the fever commonly called puerperal;’ a work which was dedicated to his friend Dr. John Ramsay, of Newcastle, upon Tyne,” p. 12.

Besides one or two other papers in the following year, he published in the same *Journal* in 1815—

“Brief Hints relative to the Improvement of the Pathology and Treatment of those Chronic Diseases usually termed Nervous,” which, says Dr. B. “he thinks are generally secondary affections, inseparably connected with disordered circulation; and that if fixed principles as to their treatment are ever to be attained, it must be accomplished by extending our views beyond the nervous system to other textures; for that it will be found on examination they depend upon venous congestion or inflammation, and their consequences, or upon some disorder of function or structure in the viscera of the three great cavities.”

We have noticed this series of publications chiefly as illustrating the course of observation by which Dr. Armstrong was led to the opinions which he formed, and soon after published in regard to typhus fever. We see him in each of these several diseases, instead of regarding the debility attending it as the essential feature of the disease, and the primary object of treatment, refer it to its true position as an effect of a preëxisting derangement, either of structure or function, which demands the chief consideration, both in the pathology and in the treatment of the disease. This is the leading cha-

racteristic of his work on typhus fever, which was first published in 1816, and which was the principal basis of his subsequent reputation.

“This admirable work,” says our author, “at once raised him to a very high eminence in his profession. It passed through three large editions in three years, and was received almost with acclamation by the medical public, not only in this country, but throughout America, where it obtained for him, from some of the most eminent professional men, the name of the modern Sydenham.”

Armstrong's “*Practical Illustrations of Typhus*,” is a work so well known, that we need not follow our author into an examination of its character or its merits. Neither is it necessary for us to go into a very full examination of the justice or the extent of his claim to an important improvement of the pathology of febrile diseases. That Dr. Armstrong's views on this subject were in a great degree original in his own mind, there can be no doubt. Nor is there any more room to doubt that the general principle maintained by him, that the prostration and debility of typhus, as well as of many other diseases, are, to a great extent at least, the result of a previous excitement, has led to a most important improvement in the treatment of febrile diseases, as compared with that system which regarded debility as the chief object of attention and treatment. It is perhaps equally true, that to Armstrong much of the credit is due of bringing about so extensive a change in the opinions and practice of physicians. His bold and energetic style of writing is well adapted to produce a powerful impression.

It is no less true, however, that similar views had already taken possession of the minds of many others as well as of his. So great a revolution in the public sentiment of the profession could never have been brought about by the writings of a single individual without an extensive preparation in the opinions of a great portion of the profession, either already formed in its favour, or in a state of rapid progress towards it. Armstrong may have been the first, and it is no small praise to him that he was so, to embody these new views of disease into a distinct form, and to give expression to them, so as to exert, a powerful influence upon the pathology and treatment of fever, over a large portion of the civilized world; although many others may have imbibed similar views, in common with him, before they had learned them from his publications.

The success which Dr. Armstrong's work on Typhus met with, and the celebrity which it brought him, excited him to seek a more extended field of practice, and in 1818 he removed to London. To

those who have any adequate knowledge of the slowness and difficulty with which a stranger obtains extensive practice in a large and busy town, it will not appear strange that Dr. Armstrong's early success in London was less encouraging than he seems to have anticipated, or that he had overrated the effect upon his professional prospects which he expected from the popularity of his writings. The influence of successful professional publications upon the public at large, is doubtless much greater in England than it is in our community. But there this influence if left to itself must have been much too slow in its operation, for the necessities of a man who had to rely upon the practice he was to obtain to support a family already consisting of a wife and two children. That Dr. Armstrong succeeded at all, so as to sustain himself in London, and ultimately to arrive at distinction there, seems to us to have been owing, in a great degree, to the very circumstance which, in its first occurrence, appeared the most to threaten to be the cause of his entire failure. We allude to his rejection by the examiners of the College of Physicians. We give Dr. Boott's account of this event in full.

“In the spring or summer of 1818, Dr. Armstrong presented himself for examination at the London College of Physicians, conformably to its regulations, which require that the graduate in medicine of any other University than Oxford or Cambridge, should pass the ordeal of its favour, and obtain its license before entering upon practice in London, or within a given distance of the metropolis. He had, perhaps, undervalued the estimate which the board of examiners place on classical diction, and the alphabet of the profession; for this distinguished physician, who had received a diploma from the most efficient and most celebrated school of medicine in Great Britain—who had been in successful practice eleven years, and was the author of three of the most popular works which the medical press of this country had ever put forth, the fame of which was still sounding in the periodical journals of the day, was rejected as incompetent to continue in the practice of his profession in London, and as undeserving the honour of having his name enrolled among the members of the college.”

“This public stigma,” he continues, “of the justice and motives of which I leave to others to judge, was not without its natural and perhaps salutary effects upon the sensitive mind of Dr. Armstrong. His nature was mild, but too dignified to submit to insult and unmerited wrong, which threatened injury to his own reputation, and ruin to the welfare of his family. He did not admit the necessity of any particular attention to his profession to qualify him for passing the usual examination the next year, as he was aware that the first rejection was generally the only one. But he felt roused to the due assertion of his own claims to respect; and from the impressions which this act of wanton power made upon him, are to be ascribed much of that indignant tone which afterwards sounded in his lectures on scholastic institutions,” p. 29.

We feel little interest in the controversy which arose between Dr.

Armstrong and the College of Physicians, and which has been repeatedly enacted and reënacted for the last hundred years, by successive claimants to some of the exclusive privileges of that privileged body. But the duties of boards of medical examiners are of so much importance, both to the public at large and to the profession, that we can hardly pass this transaction by without a few remarks. We do not perceive all the justice of the severe strictures upon the result of Dr. Armstrong's examination, as "an act of wanton power." If it be conceded that it was right that he should submit to be examined at all, it was indispensably necessary that the result should be determined by the extent of qualifications exhibited in that examination. It may be a question how far a board of examiners may be authorized to offset peculiar excellencies in one department of professional knowledge against obvious deficiencies in others. This is a discretionary power which always causes great difficulty and embarrassment whenever the exercise of it is called for; and in regard to which there are certain points beyond which it ought not to go. There are some things which every professional man ought to know; and if need be, he should be *required* to know them before he shall be received into the pale of the profession, and no degree of excellence in other particulars should authorize any board to dispense with them. To what extent Dr. Armstrong was really deficient in these "necessary things," we are not fully informed. We have, indeed, heard that he was deficient in the knowledge of some things which every man of science, and especially every professional man, is expected to know; and Dr. Boott hints at a failure in "classical diction," and in the "alphabet of the profession." We are not quite sure that we receive the right meaning of these terms. But if the meaning they are designed to give be that which they naturally convey to our own minds, we feel bound to say that in our opinion, Dr. Armstrong, as a man of science, as a member of a learned profession, still more as a teacher of medicine, had been much better employed in acquiring that "diction" and learning that "alphabet," than in "sounding his indignant tone on scholastic institutions."

The question still remains, however, whether the College of Physicians had any just right to require of Dr. Armstrong to undergo an examination before their board of examiners. He had already received a degree, and of course had undergone an examination at Edinburgh. Why should another examination be required of him? It must here be remembered that there was nothing personal in this requisition. The requirement is an universal rule; a dispensation from, rather than the enforcement of, which would have been an act of ar-

bitrary, if not "wanton" power. We must remark, too, that the authority which requires every practitioner of medicine in London and its environs, to be licensed by the College of Physicians, is not, as Dr. B. seems to suppose, one of the regulations adopted by the college, but is contained in the charter of the college, and is therefore a part of the law of the land. The College of Physicians have indeed adopted a by-law, and have pertinaciously adhered to it through every degree of opposition, which provides that no physician shall be elected a fellow, who has not taken his degree of doctor of medicine at one of the universities of Oxford or Cambridge. A more absurd rule cannot well be conceived of, nor one calculated to operate more injuriously on the character and condition of the medical profession within the sphere of its action. Neither of those universities furnishes facilities for a thorough medical education at all to be compared with such as are supplied by many other schools, both on the continent and in Great Britain. The by-law is therefore equivalent to an enactment that no man shall be eligible to the dignity and privileges of a fellow of the College of Physicians who has not contented himself with means and opportunities for professional acquirements decidedly inferior to what were equally within his reach.

This by-law does not apply at all to licentiates of the college, and had therefore no direct bearing upon the case of Dr. Armstrong, in regard to whom the question could not have been of admission as a fellow, but simply of license to practise medicine, as a person "profound, sad and discreet, gravely learned, and deeply studied in physicke," (as the charter of the college expresses it.) Still the great body of licentiates have none the less reason to complain of its oppressive and unjust operation. For it not only cuts them off from all access to privileges, which ought either to be distributed equally to all, or, at least, open to honourable competition, and confers those same privileges arbitrarily upon men who are almost necessarily less deserving of them than themselves; but since the power of examination is exclusively in the fellows of the college, it subjects the licentiates to the scrutiny of men whom, by the same necessity, they can hardly fail to regard as their inferiors in real merit, notwithstanding their nominal superiority in title and privileges.

The general good of society, as well as the prosperity and respectability of the medical profession, demand that there should be in every community a competent tribunal, to decide upon the qualifications of candidates for medical practice; to distinguish, as the charter of the College of Physicians, granted by Henry VIII. expresses it, the uncunninge from the cunninge. Nor is it in all cases enough that the

candidate should undergo such a scrutiny only at his first entering into practice. If a physician remove beyond the authority of the body which first took cognizance of his qualifications, it is but reasonable that the community to which he goes should be furnished with the evidence of his fitness to be received into their fellowship. This need not always require a second examination. If the candidate present evidence of having passed a sufficient examination before a competent tribunal, such evidence may be received as an equivalent. This, however, is rather a matter of expediency in the examining tribunal, or of courtesy to other similar bodies, than of right to the candidate who presents himself; and there are cases to which it cannot apply.

Although it is true in the abstract, that the value of human life and health is the same in all places, and therefore that the qualifications of physicians should every where be the same, yet in actual practice it is far otherwise. That community which offers the most liberal remuneration to an enlightened and learned body of physicians, will demand and obtain men of higher attainments, than another where the rewards of the profession are of less consideration. The standard of qualifications for admission into the profession, must therefore be as different as the different states and wants of society. And it becomes the duty of each examining tribunal to judge of those qualifications, not merely as an abstract question, but chiefly in reference to the condition of the profession in the community to which they belong. This principle has been, and probably always will be regarded with some degree of jealousy by those upon whom it chiefly operates, and its execution has not unfrequently drawn a great deal of odium upon those who insist upon enforcing it. The man who goes from some interior or provincial institution, where he has obtained his professional education at half the cost, if not with half the opportunities, of those among whom he proposes to establish himself, takes offence that the testimonials he carries with him are not received as full evidence of his competency to share equally in their privileges; and the institution from which he proceeds unites perhaps in his indignation, and resents the rejection as an act of disrespect to itself. Yet both are unreasonable. Those to whom he would join himself have passed a severe scrutiny themselves; and they owe it to the community, which affords them a liberal remuneration, to sustain the full elevation of professional attainments.

Nor is there any serious difficulty in the practical application of the principle, complicated as it may seem, in the abstract to be. The statutes of each institution which fix the standard of preliminary education are published; and the conduct of each under those statutes

is generally matter of public notoriety. When a candidate presents himself to an examining tribunal with credentials from another, if the institution from which he proceeds has adopted a standard of qualifications as elevated as its own, and in practice honestly adheres to that standard, it is fitting that he should be received upon the faith of his testimonials. But if, on the contrary, he comes from an institution which judges a less amount of attainment to be sufficient, or which is accustomed, while it fulfils the requirement to the eye neglects it to the sense, (and such medical institutions there are,) it is not only reasonable, but absolutely necessary for the security of the public, and the character of the profession, that he should furnish further evidence of his attainments.

It is in this manner that the qualifications of candidates are attested by some of the best-established medical societies in this country; and although a little jealousy has sometimes been felt and expressed by some of the minor institutions, the system has been found on the whole, to secure pretty effectually the community from the inroad of ignorant pretenders, and the profession from open dissention, and in a great degree from private discord. There is probably no portion of the globe in which the medical profession exhibits so much harmony among its members, and enjoys so extensively the confidence of the community as in some parts of America. If such be the fact, and we feel quite confident that we are not mistaken, it is owing chiefly to the character and administration of our public medical institutions that it is so.

But to accomplish these objects, it is essential that the medical institutions themselves should be properly constituted. It is sufficiently obvious, from the very nature of the case, that in any community the medical profession are the proper judges of the degree of qualifications which that community demand in its physicians. But this power properly belongs to the profession as a whole, and not to any detached portion of it. The *whole* profession, therefore, acting either collectively, or by authorized delegation, should fix the terms of admission to their fraternity; and entrust the execution of their rules to men, selected by, and responsible to themselves. In this way alone do we conceive that the decisions of the examining tribunal will be sure to receive the sanction of the profession or the confidence of the public. And without these they are of little value. In these days, the power of mere law, or of exclusive privileges, does little to give efficacy to the judgment of a board of examiners, when that judgment is opposed to the sentiment of the more respectable part of the profession. This is a point of some importance, and

worthy of more consideration than it has received. We cannot now examine it fully, but must be content with remarking that the whole substantial value of the decision of any examining tribunal, depends upon the degree of confidence placed in that decision; and the confidence of the public at large, is measured almost exclusively by that of the profession. A tribunal which does not possess this confidence, may do much to embarrass and perplex the course of those whom it may wish to discountenance, and much to disturb the peace of the profession; but it cannot controul the conduct of individuals, nor secure the harmony of the whole.

In this particular our medical institutions differ most essentially from those of England. It is true, indeed, in our own country, that the greater part of our schools for medical education are not under the immediate supervision of the profession, and some of them do not recognise any *direct* influence from it. It is equally true, however, that the medical societies in each state, expressing as they do, the collective voice of the whole profession, have by their organization a controlling power over the education of candidates, which no medical school in our country could effectually resist. Happily collision is not likely to arise between the two classes of institutions, for the interests of both are pledged to maintain a high and healthful standard of professional attainments. But if any medical school were to become so unmindful of its duty, and true interests as to attempt essentially to lower the standard, it would find an effectual check in the medical societies by which it is surrounded.

How different all this is in England, is shown by the constant contention between the college of physicians, and many active and highly respectable members of the profession, and most emphatically by the case of Dr. Armstrong. We have already seen that the London college of physicians is neither made up of the whole body of educated physicians, nor of a delegation, nor a selection from them; but is a privileged body selected by an arbitrary rule from a limited portion, and this portion not likely from the nature of the case, to be made up of the best educated, or most able members of the profession. It needs no evidence to show that a body thus constituted can never possess the confidence of the profession as a whole. If such evidence were needful, the whole history of the college of physicians for more than a hundred years furnishes it most abundantly. This same history would furnish equal proof of our other position, that without the sustaining influence of the profession, the decisions of the college will not be conclusive with the public at large. But we confine ourselves to the case of Dr. Armstrong.

We have seen that Dr. Armstrong, a stranger in London, except so far as his publications had made him known, was examined before the censors of the college of physicians, and was rejected. Such a rejection from a tribunal properly constituted, would not assuredly have been final. It was quite otherwise with him in the present case. Whether indeed Dr. Armstrong renewed his application the following year, and was licensed, or whether he went through his subsequently prosperous life in despite of all the powers of the college of physicians for fine and imprisonment, Dr. Boott by a singular want of explicitness in his account of this transaction already quoted, has failed to inform us. In either case the rejection instead of retarding his professional advancement, evidently hastened it, by the strong interest it excited in his favour. Soon after it happened, Dr. Armstrong was elected as successor to the late distinguished Dr. BATEMAN, one of the physicians to the London Fever Hospital. The circumstances of his election, which seems to have had a very decisive influence upon his subsequent prospects are thus related:—

“During his residence in the north of England, Dr. Armstrong had practised extensively among the society of friends, and he owed to the recommendations of some of its members the distinguished favour which he met with from the board of trustees of the fever hospital. There was one gentleman, I believe, of this religious persuasion, who, though personally unknown to Dr. Armstrong, particularly favoured his claims. His appointment as physician to the hospital was made known to him on his introduction to the trustees, he expressed his grateful sense of their kindness, but at the same time regretted he could not avail himself of it, as their laws required that their physician should be a fellow or licentiate of the college of physicians, and that he was not a member of that body. On their inquiring the cause, he told them that he had offered himself for examination as a licentiate, and been rejected; that no cause had been expressly assigned, but that the sufficient one undoubtedly was, the opinion of the board of examiners of his incompetency to practice his profession. On his announcing this fact he was desired to withdraw, and the gentleman above alluded to, in his absence, spoke of the estimation in which he had been held in the north of England, of the high reputation which he had obtained from his writings, and it was proposed that the by-law, which made it necessary for their physician to be a member of the college should be immediately suspended. This was assented to, and Dr. Armstrong entered at once upon the duties of the important office thus honourably conferred upon him,” p. 31.

We do not believe there is a medical institution in this country, which possesses the confidence of the community around it so little, that it would be possible to procure a reversal of its decision in a case like this. And we regard this as evidence of the most incontrovertible kind, of the low estimation in which the London college of

physicians is held by many of the more enlightened and intelligent people of that metropolis.

From the time of his appointment to the Fever Hospital, Dr. Armstrong's practice increased rapidly, and he soon found himself firmly established in London. We need not therefore pursue his biography further in detail. The life of a professional man, after the obstacles to his first establishment are surmounted, like the tale of romance, when the impediments from the course of "true love" have vanished, furnishes little of striking incident to fill out a narrative. It was certainly highly creditable to Dr. Armstrong, that he owed much of his prosperity and celebrity to the favourable regard of his brethren in the profession. There was probably not a little of party feeling intermixed with the personal attachment. A man who had suffered so publicly, and triumphed so signally, was by the very nature of his situation pointed out as a leader in the opposition to oppressive "scholastic institutions."

If it be true, however, that the circumstances in which he was placed did much for his prosperity and reputation, it must not be forgotten, on the other hand, that his own character and conduct formed, in a great degree, those very circumstances, and carried him successfully through them.

But the principal cause of his early and rapid success in London seems to have been the charm of his personal character. His energy, and even enthusiasm, when roused, as he now was, to strenuous exertion, his clearness of mind, especially on subjects to which he had given peculiar attention, his amiable deportment and warmth of feeling won for him the respect and confidence of those members of the profession who came into contact with him, and the esteem and ardent affection of many friends.

"He owed his success in London," says Dr. B., "to two causes, for no one had ever fewer adventitious aids to success, and the one reflected as much honour upon his talents as the other did upon his disposition. Those members of the general profession who had once experienced the benefit of his counsel and assistance, could seldom be induced to recommend any other physician, so strongly impressed were they with the simplicity, the originality, and success of his views and practice; and those families who had once had an opportunity of feeling the effects of the gentleness and delicacy of his manner, could think of no other adviser. There are many persons in and out of the profession who will admit the truth of these remarks, and who will confess that the loss of this eminent man appeared to them irreparable. He had the faculty of communicating his ideas to others, in the most easy and intelligible manner, and from the fertile resources of his own mind, of throwing light upon the most ob-

scure and involved cases. Those difficulties which embarrassed common minds, seemed at once charmed away by the magic influence of his own; and his opinions were delivered with so much candour and perspicuity, that while others bowed before the superiority of his intelligence, they were instinctively impelled to place the fullest confidence in his skill and integrity, and to feel an irresistible affection for his character as the man blending with their admiration of his talents as the physician. His manners were simple almost to a fault, and were at first forbidding, from the absence of every thing like an attempt at effect; but no sooner did he enter upon the consideration of a case, than it was apparent he was completely absorbed by it. His seeming reserve at once gave way to a visible feeling of deep and tender interest in the welfare of his patient, who felt satisfied that he was in the hands of an amiable and sagacious man, to whom he might confidently entrust himself," p. 33.

If it should be thought there may be something of the ardour and partiality of friendship in the warmth of commendation in this and similar passages, it nevertheless scarcely the less faithfully exhibits the amiable traits of Dr. Armstrong's character. For those qualities of mind and heart must have been of no ordinary cast that should have excited so distinguished, so ardent, and so permanent a feeling of admiration and affection in such a man. Indeed this whole work may be regarded as a tribute to the high moral qualities, not less than to the intellectual attainments of Dr. Armstrong, and the author in setting them forth with such warmth of feeling, has unconsciously presented us with a most pleasing exhibition of his own character, while he has taken nothing from our confidence in the faithfulness of the picture he has drawn of his friend.

In the year 1821 Dr. Armstrong became a public teacher of medicine, in the Webb street school, established by himself in conjunction with Mr. GRAINGER. The celebrity which this school for several years enjoyed, must have arisen mainly from Dr. Armstrong's ability and popularity as a lecturer, especially after the death of Mr. Grainger, which happened in two or three years. Indeed the labour as well as the reputation of the school seems to have rested mainly upon him, for we find him soon after, besides his course on the Theory and Practice, giving also a course on the *Materia Medica*. And since his death, the school, we believe, has been abandoned.

Dr. Armstrong's enterprise was not diminished with his prosperity. He not only carried on his various lectures, and attended to his increased practice, but made several publications which our limits do not allow us to notice particularly. His ambition, stimulated by the course of distinction and fame which he saw opening before him, urged him to the utmost exertion of his powers. Unfortunately, however, both for his usefulness and for the perpetuity of his fame, his

energy was stimulated more to the projection and commencement of new works, than to the completion of those already begun. Much of this is doubtless to be attributed to the early period at which, in the midst of his activity and enterprise, all was arrested by disease and death, but more we think to the peculiar tendency of his character and early habits.

Dr. Boott remarks of the early education of Dr. Armstrong—

“However limited his opportunities of improvement had been, I cannot but consider that his education was eminently calculated to bring forth the original powers of his mind,” p. 7.

To us, this whole matter appears far otherwise. True genius is not so bound down by the circumstances of education; while on the other hand, the efforts of the ablest minds are not unfrequently, for the want of a proper education, rendered abortive or unproductive. Such in our view was the case, to a great degree, with Dr. Armstrong; and that it has not proved so to a much greater extent, is owing, we believe, quite as much to the labours of his able and zealous friend, as to the character of his own productions. Whatever may have been the value of the several works published by himself, or the importance of some of the views, both practical and theoretical, which he either introduced or advocated, there is about them all, a want of maturity and thorough consideration of the whole subject treated, which we apprehend will prevent their sustaining a high rank as permanent standard works, and which will therefore deprive him of much of the lasting fame which he confidently anticipated.

Of the imperfections of his earlier publications, Dr. Armstrong was himself deeply sensible at a later period of his life, and “regretted that his life could not be prolonged to enable him to republish them in a more satisfactory form;” and so unwilling was he to rest his future reputation upon them, that he left it in charge to his friend to make known to the world the results of his more mature observations and reflections. His opinions on his favourite subject of fever, underwent some very important changes, subsequently to the publication, even of the latest editions of his several works on the different kinds of fever. Dr. Boott attributes these changes of opinion to more extended opportunities for observation; and he claims for his friend a no small meed of praise for his candour in being willing thus to change, when these opportunities were presented to him. But other men had observed before, if Dr. Armstrong had not; and a true philosophy would have taught him, to make use of the observations of others as well as his own. To imbibe the *opinions* of others without examination, or without sufficient evidence, may be, and

often is, a proof of imbecility. But to learn from the facts observed by others, argues any thing other than servility of mind. On the contrary, it is one of the truest marks of original, inventive genius, to distinguish between the observations and the theories of others, faithfully to apply their facts, and to receive or reject their speculations, according to the evidence which supports them; to range over the whole field of knowledge, and search out observed truths, however buried amid speculation and hypothesis.

The man who limits his knowledge to what he can himself see, necessarily limits himself to a corner. And this was the fault of Dr. Armstrong's mind. With him, seeing only was believing; and he would consent even to *see* with no eyes but his own. When he changes his views, it is not because he finds that those views are not supported by the phenomena of disease as observed on a large scale throughout the world—it is because what he sees in London is inconsistent with what he saw, or thought in Sunderland. London is a large place, doubtless, and the London Fever Hospital is an excellent institution, and affords a most favourable opportunity to observe disease. But the world is larger, and other men have seen fever, and described its phenomena, besides Dr. Armstrong.

The course which Dr. Armstrong took himself, in regard to his medical opinions, he taught his pupils to take.

“The question,” he says, in his lecture on typhus, “whether typhus fever is contagious or is not contagious, cannot be decided by any reference to black-lettered books; but by a reference to facts, and facts alone, contemplated with the most perfect impartiality.”

We are not to suppose that Dr. A. used language so feebly as to mean no more than that the question of contagion is a question of evidence, and not of theory merely. There is an obvious antithesis, such as we find in his whole life and character, between learning derived from books on the one hand, and personal observation on the other. This may be pleasant hearing to many a pupil to whom the “black-lettered book” is a sad eye-sore, while he pleases himself with the fancy that he is gaining experience, and learning how to treat disease merely by seeing it. This outcry against books always reminds us of a reply of a disciple of a late distinguished *rubbing* empirick, to a friend of ours, who had asked him, “where his master obtained his peculiar knowledge—from books?” “No, not from books,” said he. “And why not?” “It is not there.” “What! none of it,” said our friend, “among so many books?” “No, none,” said the disciple. “True,” he added, “there was another reason; *he could not read them.*” We know of how little practical value is

mere learning, without personal observation. But we must also say, and we would fain sound it in the ears of every medical student, that no extent of observation or experience, without study, diligent study, will ever make either a sound philosopher, or a good physician.

Dr. Armstrong's course in London was, from the circumstances in which he was placed, a highly exciting one, and it was on the whole, brilliantly successful. But it was short. In a little more than ten years from his removal to London, the disease, which was to prove fatal, fixed upon him; and after another year of most painful struggle between the claims of professional duties and the advance of disease, he was carried off by consumption in December, 1829, in the forty-sixth year of his age. There is a moral lesson in all this, which will not fail to force itself upon our thoughts and feelings, even in the midst of professional discussion. If the life of men be all contained in this mortal part, then let it be occupied and absorbed in agitation and excitement. It is short and full of disappointment; but if it be all, it were wise to make the most of its pursuits and enjoyments. But if it be but the entrance to another, as lasting and as full of high capabilities, as this is evanescent and unsatisfying, then surely there are better objects of pursuit, and more elevated motives of action, than the attainments of scientific research, or the highest aim of professional ambition.

Much the greater part of this first volume, as is to be the whole of the second volume, is occupied with an examination and elucidation of Dr. Armstrong's opinions on the subject of fever. We have seen that this subject engaged his attention at an early period of his professional life; that his publications upon it first gave him celebrity, and encouraged him to pursue his fortunes in London; and that there his appointment to the Fever Hospital insured his success in that metropolis. We might have added, and perhaps in justice to him we ought to have done so, that his lectures on fever attracted a very large share of attention from professional men, as well as from pupils. To his own mind, his views of fever had all the charm of original discovery, and all the vividness and much of the clearness of established truth; and he seems to have had the power of imparting in a remarkable degree these impressions to his auditors.

It appears to have taken nothing either from his own or his hearer's confidence in the correctness of those views, that they underwent some very considerable changes in the course of his investigations. The modesty of the learner combined with the intelligence and confidence of the teacher, presents too interesting a specimen of can-

dour to allow the intrusion of very scrupulous doubts whether further learning may not still further change the view of what now seems sufficiently clear and established. To our minds, cooled by the intervention of a few years time, and the distance of a few thousand miles, the suggestion presents itself, that since the enlargement of his sphere of observation from Sunderland to London caused some important modifications of his opinions, a further extension of his view to the diseases of the world might possibly have produced changes of opinion even more considerable and important. Of this, however, neither he nor his pupils had any apprehensions. What he saw, or thought he saw, he saw vividly, and he described it with a clearness and reality which powerfully impressed the minds of his hearers.

Of all his friends no one appears to have entered more fully into his views of disease than Dr. Boott; and no one surely could have described them more perfectly or defended them more ably than he has done. Indeed, we greatly doubt if Dr. Armstrong had himself accomplished the revision of his opinions, whether he would have produced so satisfactory a work—whether he would have stated those opinions with so much clearness and precision, and supported them with so much research and ability, as has been done by the friend to whom in his dying moments the task was committed. The charge of perpetuating his fame could not have been placed in better keeping, whether we regard our author's affection for his deceased friend, his zeal for his reputation, his respect for his talents and character, his confidence in the truth of his opinions, or the ability with which he has executed his interesting and responsible trust.

For the soundness of the opinions themselves, ably elucidated as they are, we are not indeed prepared in all respects to answer. Fever in all its varieties is so complicated a disease, involving so great a variety of phenomena, and attended with so many changes of structure and function in the animal system, that we have little expectation of ever seeing the whole satisfactorily explained, by any one theory applicable to all its different forms. Almost no two systematic writers on fever will agree as to the characteristic features of the disease. Each includes just so much among the essential characters, as his theory most readily explains, and rejects as accidental and adventitious, whatever of the ever-varying phenomena, will not easily fall into his rank and file.

Dr. Armstrong's theory of fever is comprehensive and simple; and it wants but a full conviction of its truth to regard it with admiration.

“One of the most striking characters of his mind,” says Dr. Boott, “was a

power of generalization, which enabled him to grasp at once a complicated subject, and to view it from an intellectual elevation unattainable by men of ordinary powers."

But from this elevation might he not overlook some peculiarity in the phenomena or their causes, which must necessarily arise in the diseases of the living system in all the varieties of climate and condition in which the human race are found? In the natural sciences a power of generalization has raised some of the masters of science to the highest distinction; and we do not wonder that a man who has so successfully cultivated those sciences, as has our author, should have carried with him into the medical profession a peculiar respect for such a power. But in the investigation of disease, there are so many circumstances of climate and season, and of the condition and constitution of the patient, to give a peculiarity, and a sort of individuality to each particular case, that an extended series of cases can hardly be *generalized* into any system, without taking for granted as a matter of inference, many things which should only be received on the fullest observation.

A very large proportion of diseases have certain points of resemblance; yet these resemblances furnish little evidence of a uniformity of character, and afford no indication that they require similar treatment. The several varieties of fever have perhaps as much that is common in their history and symptoms, as there is between the whole race of quadrupeds in natural history. And he who would thence derive for them a common origin and prescribe a common treatment, would be as skilful a physician as he would be a naturalist, who should assign similar habits and powers to the animals that run on four legs. Were it possible to go further, and as in natural history the habits of animals may be traced to their intimate organization, to trace the phenomena of diseases back to known causes, then indeed we might generalize in medicine as well as in the other sciences. But here, we contend, the analogy ceases. From phenomena observed only in reference to comparatively a few cases, we are obliged to infer both cause and effect in reference to a great many others; and others too, in regard to which there may often be circumstances operating of which we have no knowledge.

We do not mean to say that Dr. Armstrong's generalization is altogether so sweeping as that we have just supposed. Yet when we see how easily he disposes of all the various forms of fever, including many diseases in which the febrile character has generally been regarded as subordinate, it seems to us truly that his system runs somewhat upon all fours.

Our limits will not permit us to give more than a very brief summary of Dr. Boott's able and clear account of Dr. Armstrong's views of fever, those chiefly which he entertained at the close of his life. He divided fever into two great classes, common and specific, according as the cause which produces it is either *common* or *specific*.

“The common causes are those ordinary agents to which mankind in every situation and under all circumstances are exposed. These are classed according to their primary effects; their ultimate effects upon the body when these amount to a powerful impression, disturbing the functions and affecting the structure, constituting what he denominated common fever; which not only included the inflammatory affections comprised in the phlegmasiæ of Dr. Cullen, but diseases of a similar nature, scattered in different parts of his artificial arrangement. It also comprised other disorders not inflammatory, the symptoms and pathology of which, by a legitimate generalization, were shown to depend upon the different stages or degrees of action arising from the exciting cause of fever,” p. 115.

The common causes he divided into three kinds—common depressants, those common agents which enfeeble the energy of the vital powers, and diminish the animal heat, the action of the heart, and of the muscular system, such as low and variable temperature, severe accidents, or surgical operations, &c. Common stimulants, which affect the whole body, augmenting the energy of the vital powers, increasing the animal heat, &c., such as high temperature, great bodily exertion, or powerful exciting emotions of mind, &c.; common irritants, which primarily affect particular parts of the body, increasing their sensibility, but ultimately operate through the local impression upon the whole system, acting as depressants or stimulants according to the condition of the patient or other circumstances. These are fermented liquors, indigested food, &c. The fever produced by the first of these causes has three stages, that of oppression, excitement, and collapse; that by the second cause, has only the two last stages of excitement and collapse.

“The specific causes of fever are those occasional agents to which mankind are not universally or equally exposed. They operate generally as depressants, and differ from common causes in invariably giving rise to fixed and peculiar, as well as occasionally to variable and common effects; the particular cause itself always operating on particular structures, probably through the blood, and thus giving rise to a fever of a peculiar or specific kind.” “These causes are certain states of the atmosphere, specific contagions, and poisons,” p. 117.

Each of these causes gives rise to fever under three forms, congestive, simple, and inflammatory; so that we have, as embracing all the varieties of fever, common congestive fever, common simple fe-

ver, and common inflammatory fever; and specific congestive fever, specific simple fever, and specific inflammatory fever.

Neither our limits nor our inclination suffer us to attempt an extended examination of this view of fever. We have recently gone over much of the same ground,* and we have not the heart so soon to retrace our steps. Besides, we are not very confident that the utility of these discussions are an adequate compensation for the labour they require, unless it be by the warning they give, by showing how easily the best powers of observation are led astray when once the love of theorizing has taken possession of the mind.

The mere statement of this view of fever, shows how entirely hypothetical it is in all its parts: and yet Dr. Armstrong seems to have regarded it all as a simple deduction from his own observations; and our author so far partakes of the same impression that he no where calls it even a theory, but speaks of it as a description of what takes place in the production and course of the disease. The cause of disease is often unknown, or at best is known only by a remote influence; and its mode of action is still less understood. By making these the basis of the whole system, instead of being guided by the phenomena of the disease, diseases are brought together which have little affinity, either in their symptoms, or the treatment they require, while others are separated which cannot be distinguished by any thing which occurs in the course of the disease itself. Thus, intermittent fever, remittent fever, including yellow fever and the plague, and typhus, are one and the same disease, differing only in degree; while yellow fever is regarded as three distinct diseases, which almost all the writers on that disease have confounded together, and two of which it is conceded, one common fever, the other specific, cannot be distinguished by their symptoms, and require no essential difference of treatment.

“That the different forms of typhus,” says our author, still giving Dr. Armstrong’s view of fever, “are merely degrees of one and the same disease, appears by their passing, in some cases, from the milder to the severe modifications, or re-passing from the severer to the milder; thus, intermittent fever sometimes becomes remittent, and this continued; or the continued becomes remittent, and this intermittent.”

But what if it should turn out that whole districts of country are subject to one form of fever, while for a long series of years the others are never found there? This is precisely true in New England. Nearly the whole of New England is perfectly free from intermittent

* See Review of Smith and Tweedie on Fever.

fever, excepting the few cases of those who have been exposed to its cause elsewhere, and has been so for a long period of years. In the early settlement of the country, this portion of America suffered as other new countries almost always have done from intermittent and remittent fever, as well as from other diseases; and at later periods, the overflowing of a meadow by the erection of a dam, or some similar operation, has occasionally given rise to it within a very limited space. But with the exception of cases of this sort, in which the disease has always disappeared whenever the local cause has been removed, we are not aware that a case of intermittent fever has originated in New England for many, probably more than a hundred, years. Typhus fever, on the contrary, or, to conform to the language of Dr. Armstrong, continued typhus, is to be found in every part of New England almost every year. It rarely becomes epidemic; but sporadic cases occur annually, both in the towns and throughout the country.

The explanation of the pathological distinction between these different forms of fever, is still more remarkable.

“The distinguishing characteristic symptoms of each merely depend on a difference in the degree of the pathological effects produced. In the mildest form there is no apparent inflammation; in the severer form there is inflammation; and in the worst form this inflammation is so much more extensive or intense, as to prevent any intermission or remission of the symptoms,” p. 174.

Again—

“The first [intermittent] is a simple fever, or one of simple excitement; and the two last [remittent and continued fever] are inflammatory. The inflammation in both attacks the same structures; but in the remittent form it is not so influential as to prevent more or less a morning remission of the symptoms, while in the continued form it is so urgent as to make the fever assume a continued type,” p. 174.

We know not upon what evidence it is assumed that intermittent fever is unaccompanied by inflammation, nor are we told what is the nature of those visceral enlargements which so often accompany this form of fever as to be familiarly denominated ague-cake. Neither are we presented with the evidence that inflammation always attends remittent or continued fever. It may perhaps prove nothing more than our want of sagacity to detect inflammation, to say that we have seen cases of typhus in which we were unable to discover it; but we may say that cases are recorded by able and acute pathologists in which no symptoms of inflammation were observed during life, and no marks of it could be found after death.

But we gladly turn from this subject to meet our author on the fair

field of actual observation: and here we are so well pleased with his labours that we could fain have wished he had never been induced to leave it even to follow with such eminent ability his distinguished friend in his speculations.

Dr. Armstrong's opinions in regard to the cause of typhus underwent an entire change in the course of his life. At the time of the publication of his volume on the disease, he regarded contagion as the sole cause of the disease. Afterwards he doubted, and at the last, as we have seen, he considered it as interchangeable with intermittent and remittent fever, and like them produced exclusively by malaria. Dr. Boott has enlarged upon this last opinion, and gone into an able and extended examination of various epidemics in reference to the question of their origin or their mode of propagation. This examination occupies the largest, and in our view, much the most valuable part of the volume before us; although he has so far only examined the fevers of this country. In another volume he promises to subject to a similar scrutiny the fevers of Europe from the time of Sydenham.

In his examination of the fevers of America, although Dr. Boott considers them, in some measure, in reference to Dr. Armstrong's peculiar views of fever in general, yet we do not perceive that those views deter him at all from a faithful consideration of their true character as exhibited in the best descriptions of them to which he had access; for example, he follows Dr. A. in regarding all our fevers as modifications, or different forms, of typhus; but when he inquires into their character, he investigates them as so many independent diseases, with very little reference to their supposed relation to typhus. He has given us therefore an able essay upon the origin of several of the most important epidemic fevers of this country; in which he brings together abundant evidence of their non-contagious character. The discussion of this subject has indeed less of interest and novelty attached to it in this country than it appears to have in England; because it has now become so fully settled that few among our physicians we believe have any doubt in regard to it. Still this volume will be found to possess a high degree of value to American physicians. For we know not where else they will be able to find so clear and satisfactory a view, in so condensed a form, of the proof of the non-contagious character of the diseases of which it treats.

It is curious to see how little Dr. Armstrong, in the change of his opinions on the subject of contagion, acknowledges any influence upon his own mind of the opinions or observations of others; if he was indeed really aware that such observations existed. We have seen that when he published his volume on typhus, he fully believed in its

contagious character. This opinion he still held when he removed to London in 1818. In his published lecture on typhus, he says—

“It is a singular circumstance, that when I first settled in London the current opinion among the profession was, that typhus fever originated *solely* in human contagion; and it is remarkable that it should have been reserved for me to *discover* that mistake in this metropolis,” p. 163.

In 1822 Dr. B. tells us his opinions were wavering.

“In 1825, and especially towards the close of his life, the doubts which he had entertained on the subject were almost entirely removed; and he confidently anticipated the time when the same change which had occurred throughout North America with respect to the non-contagious nature of the yellow fever, would take place in Europe with respect to typhus,” p. 160.

Again Dr. B. tells us, that—

“Dr. Armstrong was convinced that malaria was at least their primitive remote cause, and that the typhus of Great Britain could not be considered essentially a contagious disease; an opinion which was so much opposed to the general sentiments of the profession in this country, that in the zeal of his own convictions, he speaks of the proofs of its origin in malaria as a discovery. But other observers,” Dr. B. very properly adds, “had long before come to the same conclusion, though no one had attempted to establish them on such definite grounds,” p. 299.

We easily excuse the concluding salvo to the manes of so dear a friend. But had Dr. Armstrong lived in America, he could not have found it so easy to persuade himself that he had found a new thing in discovering proofs of the non-contagious character of typhus fever; especially using the term in his “comprehensive signification” as embracing a great variety of forms of fever. In regard to true typhus, in the restricted, and, as we think, the proper sense of the term, he would have found few physicians, so far as our observation extends, who would have agreed with the profession in London, as he represents it, in believing that it originates “*solely* in human contagion;” although he might find those who suspect or believe the existence of some modified contagious influence, coöperating under certain circumstances with other causes in the propagation of the disease. But in respect to most of the fevers which Dr. Armstrong includes under the designation of typhus, the question has long been regarded by a large proportion of the profession in this country as so fully settled, that a further discussion of it is less called for here, as we have already intimated, for the sake of giving more light upon it, than as furnishing a good summary of the evidence which has determined it.

Considering how large a part of our medical literature is received from Europe, it is not a little remarkable that the opinions of physi-

cians on this subject here should be so much in advance of those of the old world. Indeed, we hardly know which is the most surprising, that the pupil should thus have outstripped the master; or that, on the other hand, the physicians of Europe should be so slow at receiving any opinion or established observations from the new world. It were not to be expected that the great body of English, Scotch, and Irish physicians, to whom, from the community of language, this remark chiefly applies, should know much of the state of medical opinions at such a distance from them, or should condescend to notice, if they had heard of, what comes from so youthful a country. But from the public medical journals of Great Britain, and especially from the public teachers of medicine, it might have been hoped that they would look out for true knowledge wheresoever it is to be found.

That Dr. Boott is not liable to the imputation of neglecting American medical literature, is sufficiently obvious from the very nature of the publication before us. With him the question of the contagion of fever is to be settled by a wider range of observation than falls to the lot of any single individual, however extensive his opportunities may be; and he naturally turns his eyes first to this country, to which he gives the credit of having made greater advances towards settling it than have been made elsewhere. If his volume shall have the effect to furnish to English physicians a just estimate of the state of medical science in this country, he will have rendered an important service to the profession in his own country, while American physicians may well acknowledge their obligations to him for such a service.

Having gone through with his elucidation of Dr. Armstrong's views of the nature and the symptoms and treatment of fever, Dr. Boott goes on to a consideration of the remote cause of fever. Here he begins with a statement and defence of Dr. Armstrong's opinion founded upon the assumption, which we have already noticed, that typhus has a common origin, and common character with intermittent and remittent fever. But he soon breaks loose from the trammels of supporting a system, and considers the question independently as the evidence is presented by the history and phenomena of each disease.

He begins with yellow fever; under which name Dr. A. believed that three different affections had been included, viz. acute hepatitis; the inflammatory endemic of the West Indies, a *common* fever arising from heat acting on unseasoned constitutions; and the epidemic bilious remittent, the offspring of marsh effluvium, and therefore a *specific* fever. Having considered somewhat at length the character of the two last varieties of yellow fever, Dr. B. proceeds to the inquiry

whether there is a fourth variety to be found in the Boulam fever, so earnestly contended for by Dr. Chisholm, and the other advocates for the contagion of this disease. The supposed origin of this fever he examines in detail, and fully establishes the conclusion that there is no ground for regarding it as a distinct disease. Our limits will not permit, neither is it necessary that we should follow our author through his examination of the evidence in support of this result, exhibited during the prevalence of yellow fever at different times in Philadelphia, Wilmington, Port of Spain, Baltimore, and other places. Suffice it to say, that with a sufficiency of detail, he has given a condensed, impartial, and to our minds a conclusive view of the subject.

This view is greatly strengthened by the survey which he next takes of the fevers that have appeared at different times in various parts of the United States. The leading object of this survey is to show the affinity which our author, in common with his distinguished friend, believes to exist between intermittent and remittent fever, and typhus.

“Dr. Bancroft,” he says, “has asserted that typhus is not to be found in tropical countries; and no one will dispute the assertion, if he means a fever characterized by all the symptoms of the typhus of Great Britain; but that a specific continued fever actually exists in either India, the product of malaria, differing in no other essential respect from our common endemic than might be expected from the difference of climate, is proved by the observations of several authors. A similar fever is also frequently mentioned in America, even in places where yellow fever exists; but its occurrence is most common in the midland and northern states, north of lat. 39° or 40° , where the temperature is on the average too low to give full development to yellow fever, at least in its epidemic form,” p. 301.

We have on a former occasion* remarked somewhat at length on the unsatisfactory nature of the inference, that even typhus is everywhere the same disease, because it has in many respects similar habits, and obeys similar laws; and we should now find it easy to exhibit what seem to us insuperable difficulties in the way of regarding the several fevers here considered, as identical in any proper sense, or in any such sense as will be useful, or even harmless either in theory or practice. But our limits forbid a prolonged discussion, and we have little inclination to contend on mere points of opinion, where the facts are so faithfully exhibited. As a matter of analogy, though in our view not as decisive authority, all that is here said is fairly brought into the argument. Independently of all considerations of theory, it is a highly interesting and valuable survey.

* Review of Smith and Tweedie on Fever.

Beginning with the southern states, Dr. B. first brings together accounts of a great number of fevers as they prevailed at different times in those latitudes in which yellow fever most frequently prevails. These fevers were obviously endemic in their origin, and varied in the different cases, from a tolerably mild intermittent to malignant remittent, and continued fever; and in many instances the different forms interchanged, as the prevalence of the disease increased or declined. We cannot accompany our author through this survey, nor examine the conclusions to which he arrives. But our national vanity, (it may be,) will not suffer us to omit the following flattering testimony to the observations of American physicians.

“I must again repeat, that I know of no body of facts more instructive in the whole compass of medical literature, than those contained in the reports of medical men scattered through the states of North America; men, who, however imperfect their early education might have been, as compared with those who had also the advantages of the elaborate instruction of the European schools; thrown as they necessarily were upon their own resources, in a country fertile in all the varieties of fever, and obliged to discharge *all* the duties of the profession, may be said ultimately to have been taught in the great school of nature, where the observation of her phenomena led to the best practical information, unfettered by those systems and creeds which hold such influence over the minds of men in a narrower field of observation, and limited, as in this country, to the practice of one particular branch of the profession. A comparison of the medical literature of America from the time that Rush's views began to be widely diffused, with that of this country up to the publication of Mills' work on the efficacy of blood-letting in fever, would, I am confident, reflect honour on America,” p. 391.

“Rush had thirty years before inculcated what are considered at the present day sounder views of disease; and his influence in America was equal to that of the great Edinburgh professor in this country. ‘We remember, (says a well-known journalist, in 1809,) the horror and incredulity that was excited some years ago by the evacuating system of Dr. Rush, and of some West India practitioners in yellow fever; and how a celebrated German professor of the stimulating school shrugged up his shoulders, and prognosticated the certain death of a patient in our infirmary labouring under typhus, when he heard his physician prescribe some necessary evacuations. But the practice of Dr. Rush was successful, and our condemned patient speedily recovered.’” p. 393.

The survey which our author next takes of the fevers of the “mid-land” states, occupies somewhat more than a hundred pages of his volume. It is an able summary of the accounts of yellow fever at Wilmington, and at Philadelphia; the latter chiefly from Dr. Rush. Dr. Rush's own most interesting account of this portion of our medical history, is too familiarly known to our readers to require from us

* Edinburgh Medical and Surgical Journal, Vol. 85.

any notice of it. Dr. B. then turns to the fevers of the city and state of New York.

“Among which,” he says, “we shall find examples of yellow and typhus fevers; the last appearing, as at Wilmington, in Delaware, in those years when the state of the atmosphere was not such as to give rise to the former modification of fever.”

“I have already remarked,” he adds, “that if malaria be the primary origin of typhus, as well as of the common remittent and yellow fever, and that if a continuance of high heat be essential to the latter, we might expect, in a country of such vast extent as North America, to find, as we examined the character of fever progressively from the southern to the northern portions of the continent, that yellow fever, which is annually endemic at Vera Cruz, and New Orleans, would be represented by some other form in those places where the mean temperature from latitude would be too low to give that irritability to the animal organs, or that concentration and intensity to malaria, which are considered essential to the full development of it. It will be seen that this change of type actually occurs in different years; and that New York, which is situated in latitude $40^{\circ} 42' N.$, is the last place in this progressive inquiry from south to north in which we meet with any frequent examples of severe and extensive epidemics of yellow fever,” p. 513.

The volume closes with a similar but concise view of the fevers of the eastern states. In this we find little notice of the typhus fever, strictly so called, which occurs to a greater or less extent almost every year throughout New England. This we believe is not to be attributed to design or inattention on the part of the author, so much as to a want of the necessary authorities. It would have interested us greatly to have seen a faithful and able comparison, such as he would have given us, of the typhus of New England with that of Great Britain. But we freely confess we should ourselves have been somewhat at a loss to refer him to the materials on our part, necessary for such a comparison; and we cannot therefore complain that it is not given us. The truth is, typhus in New England rarely occurs, except in sporadic cases, and attracts so little of general attention, that very little seems to have been written respecting it. No one physician sees so much of it, as to feel authorized to write about it, in the expectation of instructing his neighbours, and all, or nearly all, see enough to lead them to forget that it may be an object of curiosity and interest to the medical public.

In concluding our notice of this work, we are not without apprehensions that we have not sufficiently expressed our high sense of its value and interest. Although we have not been able to enter into all the feelings of admiration and respect towards the public character and attainments of Dr. Armstrong, with which an ardent friendship

had inspired the author, we would feign hope that we have done justice to the excellence of those feelings, and to the personal worth which gave rise to them. And we have wholly failed in giving expression to our opinions, if we have not made it appear that his account of the fevers of this country is a work for which every American physician may well feel grateful to him.

We look for the appearance of the second volume with eagerness. The promised account of European fevers, if written with equal faithfulness and ability, will furnish us with a highly interesting and valuable piece of medical history. We are glad to learn that as soon as that volume is received, the whole work will be immediately issued from the press in this country.

E. H.

ART. XVI. *Nouveau Système de Chimie Organique, fondé sur des méthodes nouvelles d'Observation*, par F. V. RASPAIL. Accompanyé de douze planches gravées, dont six coloriées. Paris, 1833, pp. 576. 8vo.

THE close and intimate connexion existing between the sciences and their dependence on each other for an explanation of the phenomena peculiar to each, becomes more and more evident, as we advance in knowledge. Even chemistry, whose limits were formerly considered as perfectly defined, has within a few years assumed an entirely new aspect, and her votaries, instead of relying exclusively on crucibles and reagents as the only legitimate instruments of research, have called to their aid the apparatus and laws of other departments of learning, and have thus been enabled to extend the domain of their art in a wonderful and unexpected manner.

This union of means has been strikingly successful in our researches into the ultimate composition of bodies, and has afforded results whose truths can be verified by the strictest rules of mathematical calculation. By the theory of atoms and that of definite proportions, we are enabled to ascertain with certainty the primary constituents of inorganic substances, and the rules which govern and modify their combinations, so as to be able in a vast number of instances to imitate nature, by forming these combinations at will. But when we attempt to apply these rules to the explanation of the phenomena of organized beings, we find our resources fail, and are obliged to confess the futility of our means. For although animal and vegetable substances are composed of a very small number of

simple bodies, these are combined in so great a variety of forms, and their union is regulated by a power or powers so widely different from those which act on inorganic matter, that the usual means of explanation totally fail. In inorganic substances, all the phenomena may be referred to action of external agents, the operation of purely physical forces, and the simple and well-ascertained laws of affinity. In organic substances, on the contrary, we are compelled to acknowledge the influence of something, which whilst it regulates and controls all the processes and phenomena that occur, is at the same time only known to us by its results. It is not therefore surprising that our knowledge of the ultimate structure of organic substances should be so imperfect, and more especially, when the modes in which all investigations respecting them have been conducted, are so defective. These methods have universally consisted in subjecting the substances alluded to, to trials which destroyed their distinctive character, and reduced them to the rank of inert bodies, a plan of proceeding which has necessarily resulted in an infinity of errors and the creation of a multitude of artificial difficulties.

The author of the work now before us appears to have been fully impressed with the uselessness of attempting to investigate the mysterious operations of nature by following the beaten track of mere chemical analysis, and has taken a far wider field of observation, by invoking the assistance of all the demonstrative sciences. His plan is thus stated:—

“Nature having deposited certain substances in certain organs, I shall demand of anatomy the means of recognising these organs, and as soon as I shall have learned to distinguish them in all their varieties of form, I shall call on chemistry to aid me with her processes and reagents. If these organs are too small to be properly studied with the naked eye, I shall invoke the assistance of the microscope. Optics will teach me to follow the course of luminous rays, and enable me to appreciate the effects of reflected or refracted light, and in fact I shall transport my chemical laboratory to the object-glass of my microscope.”

This is in truth the only method from which we are to expect advantageous results, and although its full development will demand the most assiduous attention and the lapse of many years, no step that is gained will have to be retraced, and the labours of each successive inquirer will not be spent in overturning those of his predecessors, as is too often the case under the present defective systems of observation, which however plausible they may appear, have the radical defect of leading only to the study of the isolated properties of a substance, and can never enable us to judge of them as they are combined and distributed by the hand of nature.

M. Raspail has been known to the scientific world for a few years only, as his first publication was in 1825; since which time, however, no writer has given evidence of greater zeal or more untiring industry in various departments of the natural sciences; for it is not as a chemist alone that M. Raspail is advantageously known—his botanical acquirements entitle him to a high rank, as is evinced in his essay on a general classification of the gramineæ in the *Annales des Sciences Naturelles*, (t. V.) and his numerous botanical observations in the *Bulletin des Sciences et de l'Industrie*. The present work is founded on the numerous memoirs he has already published, and may therefore rather be considered as a condensation and arrangement of former materials than as matter entirely new: we mention this, as in any questions of priority that may be discussed, we shall consider the date of the original memoir, in preference to that of the present work.

But whilst thus allowing the fullest credit to M. Raspail, and in appreciating his labours as of the greatest benefit to science, we cannot avoid protesting in the strongest terms against the angry spirit which pervades the present work, for however he may conceive himself neglected or oppressed, he should have recollected that personal abuse and political accusations against his competitors in the field of science are sadly out of place in a work like the present, and we are even tempted to believe from his own confessions, that he owes many of the evils of which he complains to the unsparing manner in which he has attacked others. This observation is not applicable to our author alone, and we are glad of an opportunity of making a few observations upon it. The squabbles and petty disputes of the learned have done more to degrade science in the eyes of the ignorant than any thing else, and from their frequency and acrimony of late years, many injurious consequences have arisen, which it will take years of concord to remedy. In the medical profession they are still more productive of evil, and if persisted in, must eventually destroy that respect for it so essential to its usefulness.

There is one other point to object to in the present publication, and unfortunately it holds good with almost all the other writings of our author that we have met with; this is his silence respecting the labours and discoveries of those engaged in the same pursuits; they are seldom or ever alluded to except in terms of reprehension, without any allowance being made for the possibility of error on the part of M. Raspail himself. In fact, a student who had not an opportunity of following the progress of chemistry and vegetable phy-

siology, would be very apt, from a perusal of the present work, to imbibe the idea that the whole merit of the discovery of the facts detailed in it was attributable to the author alone, and that all others who have treated on similar subjects, have only involved them in error and obscurity.

M. Raspail commences with a long but important introduction, which requires a more extended notice than is generally awarded to such preliminary matter.

“This new mode of observation,” says he, “applied to the study of organized bodies, is based on a certain number of generalities, and requires for its exposition a certain number of operations, which I shall proceed to explain, and shall afterwards devote separate chapters to the method of operating on a small scale, and that of proving the truth of the results obtained by investigations on a more extended one, with the theory which appears to me most naturally to arise from the alliance of these two modes; and finally I will give the classification adopted.”

Our limits will, however, prevent our entering on his account of the apparatus made use of, and we must refer such of our readers as wish to pursue similar researches to the work itself, which gives some admirable rules for the use of the microscope, and describes a very simple but effective mode of carrying on chemical operations within the sphere of action of that instrument. M. Raspail very properly is not content with these minute processes, but repeats them on a larger scale with the aid of the usual chemical instruments and reagents, and thus is enabled to verify or correct one series of experiments by another conducted in a different manner. To use his own words—

“The first rule, or rather the fundamental principle of this method, is in the study of a substance, to interrogate all the laws under whose influence this substance is developed and exists.”

To accomplish such a plan, it is evident that the observer must not rely on the resources of one science alone, but must call to his aid all the lights afforded by others which have any bearing on the subject of his investigations.

M. Raspail's exposition of the theory on which all his work is based, requires a more extended notice, and we shall attempt to give an abstract of it here in as few words as possible, as we shall have occasion to refer to its details more at length in the progress of our remarks. He totally and very justly denies that the atomic theory which has shed so much light on the constitution of inorganic bodies is applicable to those possessed of vitality, for although the organic molecule is

the result of a chemical combination of known inorganic elements, they are combined in such a manner, as by this very combination to give rise to a new class of phenomena wholly differing from those of inorganic bodies, we must therefore refer to the very organization of these bodies for an explanation of these phenomena. This organic molecule in its simplest form is considered by M. Raspail as an imperforate vesicle, endowed with the faculty of inspiring gaseous and liquid substances, and of expiring again such of their decomposed elements as it could not assimilate; these vesicles, he thinks, are themselves formed of an aggregation of smaller ones performing the same functions, and that we may suppose them to be composed of water, carbon and a base, which crystallize in the vesicular form, and become endowed with properties widely different from those appertaining to any other combination of inorganic substances, being under the influence of a different law, that of vitality.

The author does not attempt to define the character or nature of this governing principle of organization, as it is only appreciable by its phenomena. He is of opinion, nevertheless, that all the effects of the organization and formation of organs are ultimately referrible to the property with which the organic vesicle is endowed, of inspiring gases and liquids, of condensing the former, of assimilating the products by attraction, and of rejecting or expiring by repulsion its unassimilated contents. This double function, attributed by M. Raspail to the organic vesicle, is identical in its results with the endosmose and exosmose of DUTROCHET, which, however, our author asserts, are nothing more than the result of imbibition: without entering into a discussion of this interesting subject, on which some highly interesting memoirs have already been published in this journal, by Drs. TOGNO, FAUST, VALK, and more especially, by Dr. J. K. MITCHELL, we may be permitted to remark, that the difference between the inspiration and expiration of M. Raspail, and the endosmose and exosmose of Dutrochet, is in reality only in the terms used, the deductions of each author being nearly similar, more especially as the former writer states that the power of the vesicles to thus inspire and expire gases and fluids may depend on electricity, which is the very agent assumed, incorrectly, however, by Dutrochet as producing endosmose and exosmose in living structures.

M. Raspail next proceeds to develop his system, which he avers is not founded on a previously conceived theory, but has been the natural result of the investigations which form the basis of his work. This system, if we understand his explanation, of which we are by no

means certain, may be thus explained. The object of all organic reactions being the development of organic tissues, he commences by the study of those organic and compound bodies which chemists heretofore considered as simple substances. But as these substances only become organic by insensible gradations, and not by instantaneous combination, as takes place in the formation of inorganic bodies, we may conceive of an epoch when they only had a tendency of organization. In this state he terms them organizing (*organisitrices*) bodies. These, as before mentioned, are the result of the elaboration to which oxygen, hydrogen, and carbon have been subjected in the organic vesicle, for he does not think that azote plays any part, except in sometimes combining with hydrogen, thus forming ammonia, and then entering as a base into certain tissues. The three other gases, however, under the influence of the vesicle, gradually become elaborated in such a manner, as to at last assume all the characters of organizing elements of the vesicle. He terms them therefore, organizing (*organisantes*) substances.

All other bodies he classes under the head of *organic* substances. These may be considered, says he—

“As natural and artificial products of the disorganization of tissues, or of a deviation of the organizing combination. These latter are nothing more than substances which have been excreted or thrown off as useless. They serve to saturate the bases, to prepare double decompositions, and in this way to assist in the combination of earthy bases, and organizing substances. Others again are mere errors of analysis, whose true nature and uses it remains to point out.”

It will be seen from the preceding analysis of M. Raspail's system, that he adopts the now generally-received opinion, that the ultimate structure of all organic structures is vesicular; we say adopts, for although no other conclusion can be drawn from his text, than that he has deduced this fact from his own experiments alone, it is by no means a novel one, as it is noticed by HALLER, and was most ably and satisfactorily developed by MILNE EDWARDS, before the appearance of any memoir of M. Raspail's on the subject; nor can we perceive that the latter has thrown any additional light on the subject: the mystery of the conversion of inorganic principles into organic structure is still as far from being solved as before, for it is still referred to the agency of a certain unknown power, of whose essence we are as perfectly ignorant as ever, and which will always continue an enigma to us. Researches on this point, nevertheless, like those of the alchemists for the universal solvent, have always been attended with beneficial results, by the discovery of some new and unex-

pected property or combination of matter, however egregiously they have failed in the development of the great arcanum. That electricity may hereafter be found to be the great and pervading agent of mobility in the ultimate structure, we are willing to admit, but this will not remove the veil in the slightest degree, nor explain in what manner the ultimate particles of matter becomes fitted to receive its influence.

We shall pass over M. Raspail's first division on organized vegetable substances, as it would extend this article beyond all reasonable limits to attempt an analysis of his valuable observations on these bodies, and shall confine ourselves to a notice of such parts of his work as have a more practical bearing on animal physiology; at the same time, we cannot thus pass over this portion of his labours without expressing our accordance with most of his views. It is true, there are many points on which he dwells at some length in support of his peculiar views, where his enthusiasm and desire of generalization has led him too far, but taken as a whole, it is by far the most satisfactory account of the ultimate structure of vegetable bodies that has been presented to the world.

The second division of his work includes organized animal substances, and presents some new views of so highly interesting a character, as to induce us to insert them in a condensed form.

In treating of the adipose tissue, the author states that the analogy which exists between the adipose glands in animals, and the fecula in vegetables, must strike every observer. As in fecula, each adipose granule is composed of an integument and an included substance, and both serve for the nutrition of the organs of development, and both are constituted in the same manner. Thus, if a fragment of fat be examined, it will be seen that it is composed of an external vesicle having firm membranous parietes, enveloping small masses, which are readily separable from each other, and each invested with a vesicular membrane; this formation may be further traced in like manner and with the same results, until the vesicles become too small to admit of accurate observation. Each of these masses adheres by some part of its surface to the internal face of the vesicle in which it is contained, by a *hilum*. All these vesicles, and more especially the largest and most external, are covered with a net-work of vessels, which increase in calibre as they approach the hilum, where they are inserted into one of the vessels of the larger vesicle which includes them.

The observations of M. Raspail on the membranous substance of animal organs, show that those membranes which are considered by anatomists as the simplest, are in fact, complicated tissues, evidently

composed of several distinct layers. Thus, the epidermis is formed of a collection of vesicles deprived of their contents, and closely applied together. The truly simple animal membrane is the parietes of a vesicle; in this state of simplicity it is so transparent that it is only perceptible by the plaits or folds it forms on being moved; if on the contrary it were a compound membrane, the rays of light would be reflected. On this ground M. Raspail disputes the correctness of the observations of HOME, BAUER, PREVOST and EDWARDS, and we think that he has gone far to show that the pretended globules seen and figured by them, were merely optical illusions, produced by the play of light on the different folds of the membrane. As regards the intimate structure of the muscular tissue, our author considers that when this is in its simplest state, it consists of a bundle of cylinders intimately agglutinated together, and disposed in a very loose spiral form round the ideal axis of the group. These tubes are filled with a substance which is not wholly miscible with water, and they may be considered as elongated vesicles, which are united at each end to other vesicles of the same character.

M. Raspail denies *in toto* the explanation given by PREVOST and DUMAS of the mechanism of muscular contraction, that they contract in a zig-zag form, thus describing angles, the summit of each of which is furnished with a nervous fibre. In the first place, he states that it is impossible to distinguish, by the best microscope, the ultimate muscular fibre from the small nervous fibrillæ, and in the second place that this form is necessarily the result of the mode in which these gentlemen pursued their experiments, and is produced by the adhesion of the muscular fibre to the glass on which it is placed. His own idea, grounded on numerous observations, is, that the contraction of the fibre in length is always occasioned by its extension in breadth, under the influence of the vital principle.

M. Raspail next treats of the nervous system. This he considers as a central mass, giving off branches which are divided into an infinity of bifurcations, and thus by innumerable ramifications are distributed to all points where there is a sensation to be felt or an organ to be excited: after this definition to which there is nothing to be objected he advances the following most extraordinary hypothesis.

“The nervous centre elaborates thought, (*pensée*,) as the liver elaborates bile, as the male organs elaborate the principle of fecundation, and this elaboration is effected at the *expense of the substance of the brain*, for meditation over-exercises and exhausts it, as an excess of activity exhausts the other glands.”

As we shall shortly have occasion to notice some other equally

startling assertions of our author as respects the human mind, we shall at present make no comment on the above.

From a series of carefully conducted experiments on the intimate structure of the nerves, M. Raspail has been led to the conclusion that the opinion of BOGROS and others, of the nerves being hollow and conveying a fluid, is not supported by facts; for although he does not deny that this anatomist succeeded in injecting the nerves with mercury, he considers the passage of this metal through the nerve, to have been owing to its having forced its way by the mere effect of gravity. Under the microscope, our author has found that the nerves presented a perfectly homogeneous structure, with not the slightest trace of a solution of continuity.

M. Raspail's ideas on the organization of the cerebral mass are so peculiar that we shall give his views in his own words.

"The convolutions which are observed on the surface of the cerebral lobes, indicate the salient portion of so many cells, which in turn may be composed of other cells, which themselves contain others. These great cerebral cells are arranged round a common centre, but cannot like the nerves be considered as branches derived from a main trunk. For none of them are destined to receive impressions from without, like the sentient extremities of the nerves, they are merely employed in elaborating these impressions."

The author then states that he adopts the theory of GALL, that the brain is a reünion of organs, each of which is endowed with its own peculiar functions; but he wholly denies that any deductions as to the predominance of one of these over the others, can be obtained from the protuberances of the cranium. Nor does he think that the greater volume of the brain indicates greater powers of intellect.

After speaking at some length on the chemical composition of the brain, on which he has offered nothing that requires notice, M. Raspail enters into a consideration of the functions of the brain. This portion of his work is a mere tissue of wild hypotheses, wholly unworthy of the author, and strongly tinctured with the visionary theories of the school to which he belongs. To enable our readers to judge for themselves, we will subjoin a few extracts.

"The will," says he, "is a result of an atomic combination between two subtle and imponderable elements, impressions and instincts. Instinct is the product of the elaboration of one of the cellular organs of the brain. Impressions are the product of an external excitation. An affinity or attraction exists between impressions and instincts, which varies greatly in its degree as regards the latter."

And he thus proceeds, making out the brain to be nothing more

than a mere chemical laboratory in which ideas and passions are concocted as in a retort. We return with pleasure to the more sane portions of M. Raspail's work, and passing over his observations on the structure of bones, cartilage, &c. in which he has very ingeniously and perhaps justly pursued his vesicular theory, we shall proceed to what we think he has elucidated in an admirable manner—the embryonic tissues, and more especially the placenta.

The ovulum, says he, is a vesicle of the ovary which is filled with organizing (*organisatrices*) substances, and remains stationary, until by contact with the fecundating fluid of the male, its contents being disposed to become organized, it detaches itself from its attachments. This ovulum, when not fecundated, is composed of a vesicle of firm but transparent texture, which is filled with an albumino-saccharine fluid in which no trace of organization is perceptible. M. Raspail, however, once met with an ovulum still attached to the ovary which contained an embryo. After fecundation, as is well known, the ovum is composed of an external vesicle, the chorion, and an internal, the amnios. The chorion, says our author, is first smooth, but afterwards becomes covered with arborescent fibrillæ; at this time no appearance of vascularity is perceptible in it; but in a short time a certain number of these fibres are attracted by the surface of the uterus, when a change takes place in their structure, and they become vascular, whilst those which have no communication with the uterus disappear. The vascular fibres ramify and extend themselves till at last they form a large mass, which is the foetal placenta. On the other hand, that part of the uterus which has attracted the fibrillæ of the chorion, also undergoes modifications; by degrees this surface loses its smoothness, and at last receives each of the fibrillæ into depressions which form in it; this perforated surface is the uterine placenta. M. Raspail appeals in proof of the correctness of his views, to the following experiment. If, says he, we attempt to separate the two placentas from each other in a careful manner, each bundle of the fibrillæ may be separated from the funnel-like cavity of the uterine placenta. This cavity is perfectly smooth, and does not present the slightest appearance of any intimate attachment having existed between it and the fibrillæ.

These fibrillæ of the placenta perform the same function as the vascular papillæ in the intestines, that of inspiring nutritive fluids. At this time the lungs and stomach of the foetus are in a state of inaction; the nutritive matters taken up by the fibrillæ arriving by means of the umbilical cord at the liver, which acts as a digestive organ, and pours out its elaborated contents into the intestinal canal,

whose papillæ in turn inspire the nutritive fluid, whence it is conveyed to all parts of the body.

M. Raspail's views respecting the *membrana decidua*, are based on the following proposition.

“That all surfaces of an organ, whether internal or external, having once fulfilled their appropriate functions, become detached, are disintegrated, and expose the layer which they had hitherto covered.”

Now, the uterus, during gestation, surpassing all the other organs in development and vitality, must, according to the above axiom, throw off numerous layers, which layers M. Raspail considers as the *membrana decidua* of authors. This is certainly an extremely ingenious theory, but is not we think borne out by facts; if it were correct, we ought to meet with these deciduous membranes in numbers corresponding to the term of utero-gestation, which is by no means the case; it would lead us too far, however, to attempt any observations on our author's theoretical opinions; we have therefore preferred presenting our readers with an abstract of them without comment.

Under the title of French tissues, M. Raspail next gives an account of those abnormal yet organized productions so often met with in the different organs of the body, as hydatids, &c. These, from an examination he made of a cyst from the wrist, he considers as the eggs of some undescribed species of animals. This terminates the first group or organized substances; the second or organizing substances, includes those natural bodies which are the product of the elaboration, to which the contents of the organic vesicle have been subjected under the influence of the vital principle; these the author divides, as in the last group, into vegetable and animal. The vegetable are gum, sugar, and sap, which we regret that we shall be obliged to pass over without further notice, than to recommend to the vegetable physiologist an attentive study of the observations on the cellular and vascular circulation in plants, as being decidedly the best account of this mysterious process that has hitherto appeared.

The animal organizing substances are more numerous, but our limits will only permit us to notice what the author says on the blood; this is an extremely interesting portion of the work, and we have been tempted to examine it at some length. After giving the various analyses of this fluid, M. Raspail proceeds to the mechanism of the circulation, which as might be expected from what we said when giving an abstract of his general theory, he attributes to the expiration and inspiration of the parietes of the vessels.

“As the blood is designed to convey life to all parts of the system and for the nourishment and reparation of the organs, it is necessary that a part of it should be absorbed by the surfaces which it bathes; these surfaces must have

the power of abstracting its nutritive portions, and they must also be enabled to return to it what they cannot elaborate, or in other terms, they must *inspire* and *expire*. Now, this double function cannot take place without producing a motion in the fluid, and this must be constant and uniform, from this double function being inherent to every molecule of the surface of the vessels."

"Every surface which aspires, if it be flexible, must in turn be attracted towards the substance aspired, it is therefore evident that this process alone will explain the movements of systole and diastole of the heart and arteries. The heart in fact, being free as regards the greater part of its surface, therefore offers the least resistance to this action, and hence its motion is the most marked. When its internal parietes aspire, or in other words, assimilate the contained fluid, it contracts, when on the contrary its internal surface expires, being repelled by the fluid it repels, the heart dilates. But as the play of this organ is energetic on account of its size, its movements also add to the rapidity of the circulation in the arterial system, which therefore, besides their own proper actions of aspiration and expiration, present pulsations isochronous with those of the heart."

Such is M. Raspail's theory of the circulation, and it certainly has the merit of being extremely ingenious and plausible; it however, requires more proof than he has adduced in its favour, and in its present form is liable to many objections, as for instance, if the pulsations of the heart and arteries were thus the result of a mere assimilating or reparatory process, why should mental emotions exercise so instantaneous and marked an influence on them.

A great diversity of opinions have existed among physiologists and anatomists as to the form and composition of the globules of the blood, and notwithstanding the apparent accuracy of our author's observations on them, the question still remains in an unsettled state. Thus, he asserts that the globules are entirely soluble in pure water, whilst MM. DONNE and BOUDET, who have repeated his experiments, positively declare that they are wholly insoluble, and still more recently M. MULLER has confirmed this fact. All that can with absolute certainty be said, is that the globules of the blood are formed of a colourless substance, enveloped in a red-colouring matter. As respects the coagulation of this vital fluid, the explanation given by M. Raspail is clear, and merits attention. After stating that blood freshly drawn is always alkaline, he goes on to say—

"The carbonic acid of the atmosphere, and that which is formed in the blood itself, from its avidity for oxygen, saturates this alkaline menstruum of the albumen, which is then precipitated in the form of a coagulum. The escape of the ammonia, (one of the alkalies present,) and above all the evaporation of the water of the blood, also set free an additional quantity of albumen."

Our author has subjoined to this account of the blood some observations on the modes proposed by ORFILA for the verification of spots of blood. This discovery was considered of the utmost importance in a

medico-legal point of view, and remained undisputed for a long time. M. Raspail, however, has most incontestably shown that neither the method of Orfila or the still later one proposed by BARRUEL can be depended upon, as they may lead to the most unfortunate results if adduced as evidence in cases of suspected murder.

We shall not pursue our examination of M. Raspail's work any further, for, as we have already stated, to enter on its contents fully would require as many pages as are contained in the treatise itself; our design will be answered if we shall have excited a desire in our readers to study it themselves, as we feel convinced that it will amply repay the time bestowed upon it, for although there is much in it that is unsubstantiated, and not a little that had better have been omitted, taken as a whole we consider it as one of the most useful works on organic chemistry and physiology that has appeared for a length of time, and we trust that the author may be enabled to revise it in such a manner as to render it of still greater utility. R. E. G.

ART. XVII. *The Hand, its Mechanism and Vital Endowments, as Evincing Design.* By Sir CHARLES BELL, K. G. H., F. R. S. L. & E. Philadelphia, Carey, Lea & Blanchard, 1833. pp. 213.

THE origin of the Bridgewater treatises, of which this is one, has been so extensively made known, that we avoid giving an account of it here, although this would seem to form the most natural introduction to our review. The common object to be fulfilled by the writers, is to illustrate "the power, wisdom, and goodness of God, as manifested in the creation." It is a noble, but at the same time a most difficult theme. Man is placed at an infinite distance from the throne of the Almighty, and yet in his self-conceit he thinks that "he can by wisdom find out God," and he pronounces with presumptuous confidence upon the designs and motives of the Divine government. We remember to have heard Mr. Corrêa de Serra call the searchers after final causes, the *coffee-house politicians of heaven*; and they but too often merit the ridicule so strongly expressed in these words.

There is certainly no occupation more worthy of engaging the efforts of man, than the study of the works of God; and in consideration of the difficulty of the task and the feebleness of his powers, he may well be excused, if he sometimes take erroneous views of nature. But let him beware how he rashly pronounces his views to be those which governed the Creator; let him be cautious, even how he expresses his admiration of what he conceives to be the contrivances of Divine wisdom, lest he should "praise amiss." It is well-known

that Paley, though master of the general argument on which natural theology is founded, committed many errors in the details, and it is painful to observe that he finds the evidences of wise design no less where he is wrong, than where he is right. In “the harmonies of nature” of St. Pierre, this eloquent writer meets with continual subjects of admiration, in a system which often owes its existence only to his own poetical fancy, and which nature herself would never acknowledge. Even our author, though in general cautious and correct, is not always free from this fault of misplaced admiration, as the following example will show.

While defending the economy of nature in certain animals, which, by their languid movements, have excited the compassion of some philosophers, he says, of the chameleon.—“He protrudes his tongue with a motion so imperceptible towards the insect, that it is touched and caught more certainly than by the most lively action.” Now, it has happened to us to see the chameleon catching flies, and *our* admiration was excited by the fact that it protruded its tongue with such rapidity as to allow the insect no time for escape. It is true that the chameleon makes its approaches so slowly and cautiously as not to excite alarm; but when it has brought its prey within reach of its long tongue, the last fatal attack is made with a quickness singularly in contrast with the general habits of the animal.

Again, when speaking of birds, our author says—

“It is interesting to notice the relations of great functions in the animal economy. Birds are oviparous, because they never could have risen on the wing had they been viviparous; if the full stomach of a carnivorous bird retard its flight, we perceive that it could not have carried its young. The light body, the quill-feathers, the bill, and the laying of eggs, are all necessarily connected.”

Doubtless, it is a wise provision of nature that birds should produce their young by eggs, but that this was not a necessary condition of the power of flying is fully shown in the bat, which is a viviparous animal, and yet flies extremely well. Nature seems to delight in overthrowing our plausible speculations. In contemplating the singular structure of fishes, so admirably adapted to the element in which they live, we should be tempted to suppose that this structure alone could be consistent with the circumstances of these inhabitants of the deep, did not the whale, the dolphin, &c.—those mammiferous fishes, those bats of the ocean, present themselves to refute our theories, and to prove that the resources of nature are not limited to the conceptions which we may form of them.

We do not mean by these remarks to discourage attempts to fathom, as far as we can, the motives and plans of the Creator in his works. On the contrary, we consider this to be the true philosophy of natural

history. But we would insist upon the duty of conducting these researches with the humility and timidity, suited at once to our own limited knowledge and understanding, and “to the height of the great argument.” There are not wanting abundant examples of contrivance in the works of nature, of which the object admits of no doubt, and which if rightly interpreted, point with an evidence not to be resisted to the existence of an intelligent and beneficent Creator. To bring forward disputed cases, therefore, and to insist upon ascribing to the Deity our own views, is useless even if we should be right, and if we should prove to be wrong, is a serious injury to the cause of truth.

It is remarkable that the contrivances of nature that most excite our admiration are the most simple, such as the pulley muscle of the eye, and the perforating and perforated tendons of the hand. We see, or think we see, clearly, the object of the Divine mechanic in these parts of his machinery; we seem even to comprehend the train of thought that led to their formation. From such examples, (and they are numerous,) we pass to the contemplation of more complicated organs, such as the eye itself, of which, as an optical instrument, we have also a tolerably clear conception. At length we are lost in mazes of difficulty, and apparent complication. In the mysterious means by which the individuals and the races of living beings are continued in existence, in the functions of motion and sensation, and especially in that of thought, we have the organs offered to our examination, but we find that our understandings are too limited to comprehend them. Still we cannot doubt that these organs are mechanisms not differing in kind from those which we can comprehend, though differing from them in degree, to an extent far beyond the reach of our intelligence. When we turn our thoughts to the divine inventor and constructor of these wonderful contrivances, our conclusions follow an analogous course. In the most simple cases, we see evidences of a train of thought such as our own minds might be capable of, and we naturally conclude that the whole mechanism of nature may therefore have resulted from the high meditations of a perfect and infinite *mind*. Even the most exalted attributes of the Deity are not inconsistent with this view of his nature. What conception of his omniscience, for example, can be so intelligible, and at the same time so sublime as that which is suggested by the following passage from Laplace’s “*Essai Philosophique sur les Probabilités?*”

“We must look upon the present state of the universe, as the effect of that which is past, and as the cause of that which is to follow. An intelligence which at any given instant should know all the forces with which nature is animated, and the respective situations of the objects which compose it, if moreover it were sufficiently vast to submit these data to calculation, would embrace, within the same formula, the movements of the greatest bodies of the

universe, and those of the lightest atom. For such a being nothing would be uncertain, and the future and the past would be equally present to his eyes. The human mind offers, in the perfection which it has been able to give to astronomy, a feeble sketch of this intelligence. The discoveries in mechanics and mathematics, joined to that of universal gravitation, have enabled the astronomer to comprehend, in the same analytical expressions, the past and future states of the system of the world. By applying the same method to other objects of knowledge, man has been enabled to reduce the phenomena observed to general laws, and to foresee those which would be produced under other given circumstances. All his efforts in the research of truth tend to bring him nearer and nearer to the intelligence of which we have been forming a conception, though his distance from it must forever remain infinite."

For the first step in the study of natural theology, namely, the explanation of some mechanism within the reach of our comprehension, there is perhaps no object better suited to the purpose than the *hand*, as it exists in man, and as it is presented, under various and singular modifications, in other animals. Accordingly, this topic is expressly named in the testament which has given origin to the Bridgewater Treatises, and is now presented to the public in the work of Sir Charles Bell. The subject is admirably fitted for an essay, admitting of unity without sameness, and variety without confusion. The order to be followed seems to be pointed out so clearly and naturally, that one would suppose no other could be chosen. It is, we should think, to treat first of the human hand, considered in connexion with the whole upper extremity; to describe the bones, and the manner in which they are bound together by cartilages; then the muscles—the beautiful arrangement of the tendons—and the manner in which all the movements of the hand are effected; then the arrangements of the nerves, which convey the commands of the will to the hand, as its chief minister, and which carry back to the brain the impressions made upon the hand as the great organ of touch. In considering these parts of our structure, clear evidences of design would continually present themselves, and might serve as so many texts for inculcating the great doctrine for which the work was written.

After treating of the human hand and arm, a vast and most interesting field of inquiry would still be left, in the modifications of the same general mechanism, presented in the corresponding limb of other animals, and in the evident, wise, and benevolent adaption of these changes to the circumstances of the animal. In this part of the work, a natural and luminous order would be attained by considering first those animals in which the anterior extremity differed least from that of man, and afterwards proceeding, step by step, to the lowest orders of the *vertebrata*, or even to the classes still further removed from the great model. In pursuing these subjects, the author might be indulged in occasional excursions into other fields of research, and thus might be formed a work full of interest

and instruction, in which “the ways of God would be justified,” and “eternal providence asserted.”

Such was the work that we expected from Sir Charles Bell. But what has he really given us? A mass of confusion—a maze without a plan: the most obvious business of the work wholly neglected, and extraneous matters forced in without a thread of connexion. It is not without pain that we give so unfavourable a judgment, but candour requires it at our hands as impartial critics. We cheerfully acknowledge the great talents of the author—we are grateful to him for the important contributions which he has made to physiology—we find, even in the work before us, interesting and ingenious views which show his research and his sound sense; but these circumstances only make us the more regret that such an author should mar the usefulness of his work by glaring omissions, extraneous matter, and a confused plan.

Will our readers believe us when we tell them that this treatise on the hand gives no where a description of the hand? Yet such is the strange fact. We find, indeed, in the title page, the words—“The Hand, its Mechanism, and Vital Endowments;”—and we find in the table of contents, “the mechanism of the hand,” mentioned as one of the subjects of Chapter II.; but these are the only places in the book in which we meet with any thing about this mechanism. If we turn to the single page, (27,) to which the table of contents refers us for this account of the “construction of the hand of man,”—the very business of the author’s task, for which he received from the bequest of the Earl of Bridgewater a thousand pounds sterling, we shall find the following paragraph to be the only one that could be meant.

“But the hand is not a distinct instrument; nor is it properly a superadded part. The whole frame must conform to the hand, and act with reference to it. Our purpose will not be answered by examining it alone; we must extend our views to all those parts of the body which are in strict connexion with the hand. For example, the bones from the shoulder to the finger ends, have that systematic arrangement which makes it essential to examine the whole extremity; and in order fully to comprehend the fine arrangement of the parts, which is necessary to the motions of the fingers, we must also compare the structure of the human body with that of other animals.”

Is this an account of the mechanism of the hand? If it be not, it will be found no where else. The paragraph seems, however, to point out a course which might lead, in the end, to this avowed object of the treatise. Let us see how this plan is pursued. First the author defines the term skeleton; then he speaks of the function of respiration, and of the class of vertebrated animals; he then alludes to the bones which, in other animals, correspond to those of the upper extremity in man, and glances at their singular modifications and adaptations; then he passes off to the subject of fossil remains, and speculates about the former states of the earth—a favourite topic,

which is resumed again and again in this work on the human hand; next we have a defence of the sloth and other tardigrade animals, and an account of the manner in which the author supposes that the chameleon catches flies, and in which certain spiders actually do catch them; then our author returns to the antedeluvian world, in which he dwells for four or five pages, indulging himself in speculations about the balance of power among the animals now extinct. Lastly, there is a premature discussion of certain false notions of the modern system-makers—a discussion to be again resumed in other places. Such are the multifarious and incongruous topics considered in the only chapter to which we are directed for a description of the mechanism of the hand.

Disappointed here, we still look, with some hope, to the next chapter, which is headed—"The Comparative Anatomy of the Hand." Our encouragement is increased, when we meet with the author's good resolution, as expressed in the following paragraph:—

"Were it my purpose to teach the elements of this subject, I should commence with examining the lowest animals, and trace the bones of the anterior extremity as they come to resemble the human arm, and to be employed for a greater variety of uses in the higher animals; but as my present object is illustration only, I shall begin with the human hand, and compare its parts. With this view, I shall divide the extremity into the shoulder, arm, and hand, and treat each subdivision with a reference to its structure in animals."

In compliance with this plan, the author, in the very next paragraph, considers—what think you reader?—why, the strength and solidity of the lower extremities—the length of these limbs—the width of the pelvis—the distance of the great trochanters from the sockets—the size and prominence of the processes—the mass of muscles on the loins and hips—and the contrast of all these with the corresponding parts of the chimpanzee, an ape which stands high in the order of the quadrumana!

After this, indeed, the author seems to enter upon his appointed work, and treats of the bones of the shoulder and arm, though most vaguely, and not without numerous wide digressions, some of which are into his favourite regions of the antediluvian world. At last we come to the title "Of the Wrist and Hand," and we have hopes that some portion of the thousand pounds sterling bequeathed for the account of the "construction of the hand of man" will now be earned. But the whole of the money's-worth is included in the following extract:—

"In the human hand, the bones of the wrist (carpus) are eight in number; and they are so closely connected that they form a sort of ball, which moves on the end of the radius. Beyond these, and towards the fingers are the metacarpal bones, which diverge at their further extremities, and give support to the bones of the fingers. The thumb has no metacarpal bone, and is directly articulated with the carpus or wrist. There are thus in the hand twenty-nine bones, from the mechanism of which, result strength, mobility, and elasticity."

Here the author's theme came full before him, but he starts from it, as from a spectre, and gives us an intelligible and really interesting account, not of the human hand, but of the fore-leg of the horse. All the remainder of the chapter is taken up with miscellaneous observations of comparative anatomy, from which we select the following:—

“I have alluded to the observation of President Jefferson on the *Megalonix*. Having found a bone, which by its articulating surface and general form, he recognised to be one of the bones of the phalanx of an animal of great size, he thought he could discover that it had carried a claw; and from this circumstance, he naturally enough concluded, (according to the adage—*ex ungue leonem*,) that it must have belonged to a carnivorous animal. He next set about calculating the length of this claw, and estimating the size of the animal. He satisfied himself that in this bone, a relic of the ancient world, he had obtained a proof of the existence, during these old times, of a lion of the height of the largest ox, and an opponent fit to cope with the mastodon. But when this bone came under the scrutiny of Baron Cuvier, his perfect knowledge of anatomy enabled him to draw a different conclusion.

“He first observed that there was a spine in the middle of the articulating surface of the last bone, which in this respect was unlike the form of the same bone in the feline tribe. He found no provision in this specimen of an extinct animal, for the lateral attachment of the bone, which we have just noticed to be necessary for its retraction. Then observing what portion of a circle this bone formed, he prolonged the line, and showed that the claw belonging to it must have been of such great length, that it could never have been retracted to the effect of guarding an acute and sharp point. The point, therefore, could not have been raised vertically, so as to have permitted the animal to put the foot to the ground without blunting the instrument! Pursuing such a comparison, he rejected the idea of the bone belonging to the feline tribe at all. His attention was directed to another order, the paresseux or sloths, which have great toes and long nails. Their nails are folded up in a different fashion; they just enable the animal to walk; but slowly and awkwardly, something in the same manner as if we were to fold our fingers on the palm of the hand, and bear upon our knuckles. On instituting a more just comparison between these bones of the ancient animal, and the corresponding bones of the paresseux, he has satisfied us, that the lion of the American President was an animal which scratched the ground and fed on roots.

“One experiences something like relief to find that there never was such an enormous carnivorous animal as this, denominated *Megalonix*.”

Chapter IV. professes to treat “of the muscles,” and begins with the following luminous definition. “The muscle of the body is that fleshy part with which every one is familiar.” Some general views of muscular action are then presented, and nature is successfully defended as to the supposed mechanical disadvantage at which most of the muscles seem to operate. At last the student of natural theology arrives at the point at which he is to look for a description of the machinery by which the infinitely varied motions of the hand are effected—he feels himself under the influence of a rational, a pious curiosity, and he meets with the following paragraph.

“The demonstration to the anatomical student of the muscles of the human hand and arm, becomes the test of his master's perfection as a teacher. Nothing is more uninteresting, tedious, and difficult to attend to, than the demonstration of the muscles of the arm, when they are taken successively, as they present themselves; but when they are taught with lucid arrangement, according to the

motions performed by them, it is positively agreeable to find how much interest may be given to the subject.

"It would be foreign to the object of this work to introduce such demonstrations here."

Foreign to the object of this work! Astonished by this strange assertion, we turn to the will of the "right honourable and reverend" founder of the project, and we find the following words:—

"The testator further directed that the person or persons selected by the said president, should be appointed to write, print, and publish one thousand copies of a work, on the power, wisdom, and goodness of God, as manifested in the creation; illustrating such work by all reasonable arguments, as for instance—the construction of the hand of man, &c."

For this special task Sir Charles Bell has received a thousand pounds sterling, and the copyright of his work, which we suppose to be worth as much more, for every body will be expected to read the Bridgewater treatises. Yet, when, in the course of his vague disquisitions, he is called upon, by an accidental approach to his subject, to explain the "construction of the hand of man," he casts it by, with the declaration that it is *foreign* to the object of the work! Now, we would ask if it be possible to form any notion of the construction, or, (to use the word which figures in the title page,) the *mechanism* of the hand, without explaining the arrangement and action of the muscles which belong to it. We would ask, too, whether there be any example in the whole animal economy, in which "design" is more clearly evinced, in which "the power, wisdom, and goodness of God" are more evidently exhibited.

The careful exclusion from this work of all account of "the mechanism of the hand," reminds us of a bill stuck up by a company of strolling players, in which they announced "Shakspeare's celebrated tragedy of Hamlet, Prince of Denmark," with the following notice: "N. B. The part of Hamlet omitted by particular desire."

The strange disregard of order, so constantly manifested in this work, is even ludicrously exhibited in the subjects of the seventh and eighth chapters. The first of these, which is a long one, has for title, "Of Sensibility and Touch;" and what will our readers suppose to be the theme and title of the chapter which *follows* it? It is, "Of the Senses generally, *introductory to the Sense of Touch*." In these, and in the chapter "On the Muscular Sense," there are, indeed, thrown together many interesting and acute observations; but the wise precept, that we should have "a place for every thing, and every thing in its place," is lamentably neglected.

Our author shows a sound judgment in the discussion of several theories which have from time to time been introduced by speculative philosophers, and enjoyed their day in the schools. One of these theories supposes that the limbs of an animal are modified *by* the cir-

cumstances, and not *for* the circumstances, in which it is placed. That for example, the neck of the giraffe has been gradually elongated, from generation to generation, because this remarkable quadruped has been obliged to reach up to the branches of trees to obtain its food; thus denying that a wise and kind Providence presided over the formation of this animal, and so formed it as to fit it to its condition. Another theory, referring to the extreme simplicity and apparent imperfection of the animals which existed in the earliest stages of the world, and which are now known to us by their fossil remains, imagines that nature has been gradually improving in her creative powers, and that these early beings were the productions of her “’prentice hand.” Sir Charles Bell’s answer to this notion is ingenious and conclusive. Another of these speculations, discussed and refuted by our author, is what has been called the “theory of elemental parts.” It supposes that the same constituent materials enter into the composition of all animals, and that if, in any animal, a part be missing in a place where it is met with in the general model, this part is merely transferred, and is to be met with somewhere else. Thus, in the mammalia, a chain of bones in the ear is curiously adapted to convey the vibrations of the membrane of the tympanum to the nerve of hearing. In birds, this chain is wanting, and instead of it, a single bone, the *columella*, is substituted; and consequently parts are missing, and among them the *incus*. Now, say the speculators of this school, this part is found in what would otherwise be a new element, namely, a peculiar bone existing in the jaw or mandible of the bird, called the *os quadratum*, and which bears some resemblance to the *incus*. The hypothesis, even in this example, which is a plausible one, is easily overthrown. These theories have, however, only a distant connexion with the professed subject of the work. The last that we shall mention is immediately connected with it. It is the notion, first taught by ANAXAGORAS, that the superiority of man over all other animals, is owing to his hand, “the consummation of all perfection as an instrument.” On this subject, which is treated in the last chapter of the work, our author very properly adopts the opinion of ARISTOTLE, that man is not the wisest of animals because he has hands, but that hands were given to him because he is the wisest of animals.

We cannot conclude our review, without again expressing our regret, that a confused plan and the unaccountable omission to describe the mechanism of the hand, must go far to make this work a failure, as regards its avowed object; but it would be unjust not to state, at the same time, that it gives us abundant evidence that the author had knowledge and talent to execute the task prescribed for him, if he had chosen to do so.

R. M. P.

BIBLIOGRAPHICAL NOTICES.

XVIII. *Illustrations of Pulmonary Consumption, its Anatomical Characters, Causes, Symptoms and Treatment. With twelve plates, drawn and coloured from nature.* By SAMUEL GEORGE MORTON, M. D. Physician to the Philadelphia Alms-house Hospital, Lecturer on Anatomy, &c. &c. Philadelphia, Key & Biddle, 1834, pp. 183.

It would be sufficient to say that the present was an original work on pulmonary consumption, prepared in the United States, containing new cases, implying and usefully exercising an acquaintance, on the part of the writer, with modern morbid anatomy, ornamented and enriched by the addition of a set of handsome lithographs, augmented with independent observations, and stating the results of recent experience in the use of the principal remedies—it would be sufficient, we apprehend, to say this, in order to command the good wishes of every true friend to the diffusion of useful professional knowledge in America. Any disposition to captiousness, or in some measure, perhaps, even to criticism, should be silenced by this feeling. Dr. Morton has unquestionably done a service to the country by the production, within its boundaries, of a monographic work on an important disease, containing copious details and valuable representations in morbid anatomy. This example, if it prove successful, will no doubt be imitated; and we shall thus, commencing with the systematic treatise of Dr. Horner, possess a series of publications on this branch of medical science; a branch among the most important, at once from its intrinsic usefulness, and from its peculiar adaptation to the spirit of the times. The principal improvements which have recently been made in our profession have been through the medium of morbid anatomy, and lovers of their country would have cause to regret if Americans should obtain no share in that harvest to which the present state of our science seems so particularly to prompt its votaries.

The object of reviewing, therefore, in such a case as this, should be rather to make known the existence, nature, and utility of a book, than to indulge in peevish comment upon its faults. Let us nourish the tree, and allow it to strike deep and firm root in the soil, before we begin to deprive it of its branches by the pruning-knife. Yet, at the same time, when comments suggest themselves to our mind as worthy of a place, we shall not hesitate to insert them. We conceive this course to be the most just, both to the public and to the author, and shall write with confidence, wishing to treat Dr. Morton, in all respects, as a man of science and of liberal views.

The work is certainly a very beautiful one;—the lithographs are finely executed and well coloured. They form a striking and interesting series of “illustrations” of the progress of this formidable disease from its commencement, through its various morbid conditions, to its natural cure. Of this last process, in single tubercles, there are very beautiful examples in Plates IX. and

XII., while Case 28 records the history of an individual in whom the recuperative change seems to have been nearly completed throughout the whole lungs; her death having been produced by a different affection.

Plates VIII. and IX. illustrate a very remarkable case, in which the tubercular pus obtained a passage between two ribs among the muscles of the back. It here gave rise to a large abscess, by the progress of which the spinous processes of several vertebræ were denuded, and great destruction effected among the soft parts. In this curious instance, the whole lung was consolidated, with the exception of the cavity giving rise to the above occurrences, by the gray induration, and by a number of tubercles; one of which was that already mentioned as being cicatrized.

The three first plates contain numerous examples of granular and miliary tubercles. Plate I. gives a view of the bronchia, coloured by the inflammation which follows, in them, the opening of tubercles into their cavities. Plate II. fig. 3, exhibits instances of tubercles beginning to soften at the edges, instead of commencing in the centre, as they are commonly said to do. It also exhibits a tubercle embracing a portion of the matter of melanosis; from which circumstance Dr. Morton infers that "it has grown by the superposition of parts, and not by interstitial deposition." We are here tempted to inquire whether the matter here styled melanotic be any thing more than the common black matter of the lungs. In Plate III. is a large encysted tubercle, and also another cyst containing a calcareous concretion. Below is a specimen of gelatinoid infiltration.

Plate IV. fig. 1, is an example of numerous small tubercles and commencing vomicæ, in a mass of lung affected with pneumonia, passing from the stage of simple congestion to that of hepatization. Fig. 2 represents a large vomica, of a greenish hue, traversed by the numerous bands so frequently met with under these circumstances, and from which Dr. Morton calls such "funicular" abscesses. These bands, in contradiction to the opinion expressed in general by the celebrated Laennec, are traversed by large branches of the pulmonary artery. Plate V. fig. 1, represents an encysted tubercular cavity, with a mass of pulmonary matter at the bottom of it, containing blood-vessels. Fig. 2 exhibits another encysted abscess, lined extensively with extremely vascular granulations, which gave rise, as Dr. M. apprehends, to a very copious hæmorrhagy with which the patient had been harassed. In Plate VI. is figured a large abscess with gangrenous spots. Across the cavity of this stretches a very large branch of the pulmonary artery, of a lively red colour, entirely deprived of all covering, except a few particles of tubercular matter adhering to it, and sending off several ramifications under the same circumstances. This, of course, furnishes a strong confirmation of the remark referred to under Plate IV. fig. 2, that arterial branches may traverse tubercular cavities. We observe that in the narrative of the case, (Case 22, p. 86,) this vessel is called a vein, although it is said to have been traced to the pulmonary artery. Plate VII. exhibits gelatinoid infiltration of several colours, as also another instance of the columnar bands above alluded to, and permeated by arterial branches. In p. 85, we are told that these latter frequently traverse tubercular cavities, and suddenly become impervious at the end of their transit, and the vessels represented in the present plate furnish an example of this fact. Plate X. is a beautifully-coloured figure of a larynx and trachea intensely inflamed, and containing numerous

ulcers, some of which perforate the cartilages. Plate XI. fig. 1, exhibits fibro-cartilaginous adhesions of the pleura, consequent on a chronic inflammation; and fig. 2, displays two adhesions of a thick, cord-like form, and containing fat; the effect of which cords was to prevent the collapse of the lung, which would otherwise have been produced by the liquids effused into the cavity. The case was one of acute pleurisy. The second figure in Plate XII. is a very curious view of an intense broncho-trachitis, with ulcers, and of enlarged bronchial glands with calcareous concretions and ossifications.

We have spoken of the plates in the first instance, and detailed their contents as above, because we really considered them a principal portion of the work. These beautiful illustrations form a topic by themselves; and accompanied by the narratives which belong to them, they would have been well worthy of publication without any further addition. The remark of the classic, “*segnius irritant*,” &c. is in no case more applicable than in the instance of morbid anatomy. Persons may read for a length of time descriptions of anatomical changes, followed by discussions respecting their nature and treatment, without acquiring accurate conceptions of their appearance, or indeed gaining confidence in the observer’s own ideas of that which is described, when a brief examination of a specimen in nature selected by a judge of the subject, or of a well-executed plate, will entirely remove the difficulty. The mind becomes satisfied in the accuracy of its own apprehensions, and knowledge and arguments that were floating and vague before assume a character more fixed and definite. More interest is taken in further discussions and observations, and the inquirer feels that he is advancing in information. We will not pretend to say that any substitute is entirely equivalent to a course of dissections conducted in the best manner; but then so many difficulties occur in the way of this, so few are placed under the guidance of persons competent to make, exhibit, and explain them, that it has always appeared to us that the student of morbid anatomy must ever depend in a great degree upon engraved or lithographed representations. These present the facts of nature, freed from the disgusting circumstances of the dissecting-room, displayed in the most distinct and advantageous manner, and accompanied by explanations, which, unlike the oral teachings of the professor, may be made to wait for the convenience of the busy practitioner, can be resumed or quitted at a moment’s warning, and will pause during any interval for more deliberate study or extended reference. They are not an adequate substitute for nature, it must be confessed; but then it will be admitted that nature frequently passes through the hands of the observer without being so well understood, or even so completely seen.

It is time, however, to proceed to our author’s text. The two chapters with which he commences are anatomical; the first containing a view of the anatomical changes which are usually found accompanying tubercles in the lungs of pulmonary patients. For this he apologises, we think without necessity, as it appears to us to form an important part of the subject. It is certainly impossible to form an adequate idea of the condition of such a patient without understanding these collateral changes; even the evidence of the stethoscope and percussion being unintelligible under such circumstances; and as his book is elementary, the definitions seem to us absolutely necessary. We are surprised that he has here overlooked interstitial hæmorrhagy, or the “*apoplexy of the lungs*,” of Laen-

nec; an affection which so frequently precedes the discovery of tubercles, to the terror and distress of families. To this he alludes at p. 55, occupying some space with this very interesting subject. We observe, p. 58, that Dr. M. applies the term "pulmonary apoplexy" in the sense in which some American physicians have used it orally, though we do not recollect to have seen a definition of this in print, nor does our author give us one. He evidently views the term apoplexy, thus used in respect to the lungs, as implying simple congestion, of which hæmorrhagy may be one of the consequences.

"All circumstances considered, we may refer the origin of the preceding disease to pulmonary apoplexy, of which the hæmoptysis was a consequence and indication." p. 58.

We confess we are not satisfied with the use of the term. "Apoplexy of the lungs" is a phrase now devoted by a numerous mass of physicians, including nearly all the anatomical school, to the expression of a hæmorrhagy of that organ; and this use corresponds with the strict use of the term apoplexy, as applied to the brain, where it likewise means a hæmorrhagy. It is true, that owing to the prevalence of an erroneous pathology, that which ascribes the production of stupor to pressure, other lesions of the brain also occasionally received this name; but as these are evidently distinct affections, though they frequently have this symptom in common, anatomical physicians now no longer use the same word to express two such dissimilar states of the organs. Many practitioners, undoubtedly, still continue this use of the term, but we had hoped the impropriety of grouping a sudden congestion and a hæmorrhagy under the same term was gradually falling into disuse, and were therefore less prepared to find it extended to other parts of the body. In the case of the brain, there is still some excuse—the two affections not unfrequently resemble each other in the production of torpor; but in the lungs there is no resemblance, unless in the simple fact that the same part of the body is diseased in both cases. We could have wished, too, that Dr. Morton's dissections had furnished him with a good specimen of the disease to which this name has been given by Laennec and others, and of which such a beautiful plate is furnished by Cruveilhier. We should then have seen at once that simple congestion is not to be confused with such a hæmorrhagic affection; although, as Dr. M. suggests, the one may not improbably be antecedent to the other. At page 123, we find Dr. Morton claiming for Dr. Rush the origin of this use of the term "forty years ago," and, if we understand the succeeding sentence aright, he attributes to Laennec the same combination of simple congestion and hæmorrhagy which he employs himself. This last, however, we believe is erroneous.

Chapter II. contains definitions or descriptions of the different stages and states of tubercle. We do not well understand the reference to Plate III. fig. 2, for tuberculoid granulations, which do not appear to us well exemplified in this plate. Unless this be an exception, the definitions are neat and clear, and correspond with the illustrations. With the termination of this chapter we begin upon doctrinal matters.

Dr. Morton, after speaking of the great frequency and prevalence with which tubercular disease commences at the top of the lung, proceeds to give us a theory upon this subject, and one upon which we cannot unite with him. He explains the circumstance alluded to by the *immobility* of this part of the tho-

racic parietes, which does not allow the same expansion, as is the case with the rest of the thorax. This state of things he considers as equivalent to compression, and such as the peculiar cause of tubercles in that situation. This view of Dr. M. coincides with his decision, page 45, against tight-lacing, as a fertile cause of consumption; on which he inveighs at some length. To this we reply, first, that the authority of Louis on this point is exactly in opposition to him. He states, p. 531 of his work on consumption, that his male patients, who wore no corsets, were quite as numerous as the female; and again, that the greater portion of his female cases occurred in women who had been educated in the country, and had never subjected their lungs to the confinement of these articles of dress until after they completed their growth. In the next place, if this be conceded as a cause of phthisis, the question as stated above by Dr. Morton rests upon totally different grounds; as we have here a natural structure, and not an artificial compression. Whether this portion of the thorax expands might be perhaps made a question in anatomy; but certainly the lung, in the natural condition of the pleura, possesses the power of sliding downwards to a wider part of the cavity, when the expansion takes place below. To suppose the original structure of the human race imperfect at this point, so as necessarily to lead to disease, seems to be impeaching the perfection of nature, and to stand at war with what we know of the general order of things. We will suggest to Dr. Morton the agency of another cause upon the top of the lungs, which seems to us to go far towards accounting for the production of tubercles in this point with peculiar frequency, as well as that of the great number of pulmonary catarrhs with which the inhabitants of our country, of both sexes, suffer so severely. We allude to the ordinary construction of our dress, by which this part of the body is exposed to the vicissitudes of the weather with a fearlessness which by no means seems to indicate colds in that portion of the body as the greatest outlet of human life. The ordinary dress of our females leaves the whole top of the lungs, the favourite seat of tubercles, either entirely without covering of any kind, or with that which is very inadequate. The portion which is situated between the scaleni muscles is, we believe, never covered; and many, if not most, of our fashionable dresses also expose to the influence of the air a more or less considerable portion of the space below the clavicles. In the male sex, although not to the same extent, a practice similar in its nature also prevails, our waistcoats being nearly all made to open and admit the cool air to the parts which lie over the bifurcation of the bronchia, and the vicinity of the clavicle. It seems to be the prevalent opinion, at the present day, that cold, at least damp cold, is the principal determining cause of pulmonary consumption; the later writers being generally agreed on this point; and if so, of how great importance must it be to guarantee these tender parts, so very frequently the victims of mortal disease, against the atmospheric influences.

Dr. Morton is brief upon the elementary nature and production of tubercle, and seems to feel the confinement of the narrow bounds to which he has restricted himself. He conceives himself as having established—

“1. That tubercles are an altered secretion of the albuminous halitus proper to the cellular tissue forming the parenchyma of organs. 2. That inflammation is not necessary to their development. 3. That the cellular tissue which en-

velopes and intersects tubercles, sooner or later takes on inflammation and secretes pus, by which process the tubercular matter is eliminated and an abscess is formed."

That inflammation is a very frequent cause of tubercles, cannot, we think, in the present state of morbid anatomy, be denied, and at the same time it must also be acknowledged that tubercles frequently occur through an operation of the white capillaries alone. On this point, however, it is sufficient to refer the reader to the work on the Principles of Medicine, by our eloquent collaborator, Dr. Jackson, and to his essay, in the 5th volume of this Journal, where this subject is clearly and ably treated, and where the absurdity of confusing together the lymphatic absorbents and the nutritive white capillaries is sufficiently pointed out and guarded against. We shall, therefore, not detain our reader longer upon this theory, but proceed in a manner more considerate of the bounds of our article.

With regard to the outward appearances of the tubercular or scrofulous diathesis, nearly two-thirds of the white phthisical patients who have come under Dr. M.'s care have had dark hair, dark or sallow complexions, and dark eyes; and of the remaining third a large number had reddish hair, and what is called the sandy complexion. These observations, which certainly do not tend to confirm the common description of the scrofulous temperament, are strengthened by remarking the great predisposition to phthisis of the negro race. Although thus unable, however, to point out the distinctive characters usually ascribed to this predisposition, our author does not deny that it really exists and is transmitted by inheritance. He apprehends bronchitis to be a frequent exciting cause of pulmonary tubercle, and gives a case in which these changes took place in the course of an attack of measles. After some remarks upon the effects of trades and professions, climates, weather, and age upon the production of the disease, he relates two cases, one of which terminated within three months and the other within one month of birth.

Under the head of symptoms, two striking instances are narrated, in which the cough and expectoration ceased for a considerable time before death, and on dissection no particular accumulation of fluids was found on the mucous membrane, which therefore appears to have ceased to secrete that substance, or as suggested by M. Andral and others, to have permitted them to be absorbed. Several pages are then occupied with the important subject of hæmoptysis. He has not, as we have already intimated, furnished us with any plate of the hæmorrhagy of the substance of the brain, the apoplexy of the lungs of Laennec. In the place of such may be substituted his beautiful figures of large arterial branches traversing tubercular cavities, which we have already enumerated, and some of which appear to give rise to the hæmorrhagy of his cases. A case is narrated at p. 60, &c. in which Dr. M. apprehends the hæmorrhagy to have arisen from the rupture of a vessel. This inference he seems principally to found upon the sensation by the patient of a "snap" in the left lung. An article, "hæmoptysis from the parietes of abscesses," contains a case, illustrated by one of the plates, in which the hæmorrhagy appears to have arisen from granulations in the lining of a cavity. With these we are willing to leave the catalogue of his symptoms. Most of the chapter is occupied with several of the leading symptoms considered separately. It concludes with a case in which a very large

number of tubercles were developed in the lungs and in various other organs of the body, and which nevertheless exhibited no symptoms whatever of the pulmonary affection.

Among the complications, that with fistula in ano will not attract our particular attention. The article on morbid affections of the pleura contains a case of a very large abscess without any adhesion in the pleura adjacent, forming an exception to the remark, general in this respect, of Professor Louis. Perforation of the pleura, encephaloid tumour, and the case of extensive denudation of the arteries already mentioned, and figured in the plates, are all successively treated. Gangrene, the case of abscess perforating the back, a case complicated with disease of the liver, cicatrization, tubercles of the peritoneum with an acute inflammation of that membrane, ulceration of the trachea, abscess connected with a similar cavity in the liver, and a purulent chronic catarrh, apparently from a calculous concretion in the lung, are all illustrated in the seventh chapter. The eighth is occupied with the stethoscope. We regret its shortness; this seeming an anomaly in such a work. The author does not profess to render his work complete in this respect, but refers to Williams, Collin, and the original work of Laennec.—On the important subject of the *treatment*, we should be glad to be more minute. He treats early hæmoptysis with bleeding, followed by spirit of turpentine, elixir of vitriol, common salt, opium, sugar of lead, &c., admitting any one of these as effectual. He then applies cups to the infra-clavian region, followed by a blister, and afterwards by an issue or a tartar emetic plaster, with perfect rest, and a diet of gum-water and farinaceous food. He then strongly recommends the country, not fearing injury from the motion of a carriage. When hæmoptysis takes place after a cavity exists, he disapproves of bleeding or any other active depletion. He employs the other remedies indicated above, with the addition of tonics and alteratives.

Dr. M. expatiates upon the very great importance of curing chronic catarrhs; but as his observations on that subject do not appear likely to interest our readers particularly, we shall not extract them. Hectic is treated, early in the case, and when severe, with blood-letting; after which resort is had to digitalis, as also to neutral mixture, acidulated drinks, with or without sweet spirits of nitre, and spongings of the limbs executed with cold vinegar and water. The bowels are regulated with magnesia, or small doses of neutral salts, and carriage-riding resorted to as soon as practicable. Night-sweats are checked by lotions of alum and brandy, and by infusion of sage with elixir of vitriol. “In many instances,” says our author, “a dose of this mixture taken every night at bedtime will answer every purpose.” In one instance equal benefit was derived from prussic acid, and in one from a combination of sulphate of iron and alum.

The pleuritic pains which accompany the development of abscesses are to be treated by a few blisters or cups over the affected part, followed by a small blister, and this again by a poultice of bran and flaxseed—a practice taken from Professor Broussais. The gastric symptoms we pass over. Dr. Morton treats diarrhœa most successfully by injections of morphia dissolved in gum water, infusion of flaxseed, or some other bland mucilage. He often adds with advantage a table-spoonful of camphor water. He has also derived signal benefit from the mixture of laudanum, camphor, and nitric acid, recommended by Dr. Home, which he makes very weak. Where other means have failed, calomel in small

doses, with opium and ipecacuanha, are found effectual. A strong infusion of dogwood, and also the combination of alum and sulphate of iron, recommended to and by M. Orban, from the Moorish physicans of Morocco, are among the remedies which Dr. Morton has tried with success. One and a half grains of each of the above-named salts were given by Dr. M. twice a day. Costiveness is to be treated, where this is necessary, by bran bread and cream, morning and evening, or by ripe fruits. Where these means are insufficient, rhubarb, either alone or with magnesia, or the neutral salts should be used. Frequent vomiting, according to our author, can only be relieved by an extremely simple diet. It is sometimes necessary to confine the patients to mucilaginous drinks for several days in succession; and in other cases nothing should be taken into the stomach but lime water and milk.

Some of the results of Dr. M.'s therapeutical trials have been very flattering. He is sanguine in relation to digitalis. Of iodine he has made numerous trials, and feels "able to express an unequivocal opinion respecting it. In a large number of instances, it has appeared, especially in incipient consumption, to arrest or suspend the tubercular secretion, and with it the hectic, marasmus, cough, dyspnœa, and other urgent symptoms." He is "cautious to discontinue it whenever it is followed by sick stomach, vertigo, or any of those symptoms usually called nervous, as also when there is much febrile excitement;" several instances having occurred "in which the persistence in it would have certainly terminated in very unpleasant consequences."

"There are," says Dr. M. "again, some constitutions in which it does not appear to produce any obvious effects, either for better or worse; but in a majority of cases, even in the second stage of phthisis, I have been much gratified with the results. Thus, it often relieves the dyspnœa, improves the complexion, and restores the appetite, even when the advanced progress of the disease precludes all hope of recovery. A lady has assured me that whenever her cough, dyspnœa, and febrile symptoms warn her of a fresh accession of disease, the use of the iodine at once dispels the symptoms, and restores her to her usual health. In another marked case, that of a middle-aged man, one whose lungs has been in a state of abscess for eight months past, I have repeatedly rescued him from alarming relapses by the iodine mixture alone. In some instances, it has so obviously improved the nutritive function that patients have increased in flesh by its use, and at the same time recovered, in a considerable degree, a naturally florid complexion."

From prussic acid our author has derived the usual advantages; he has found much benefit, in the chronic catarrhs of old persons which simulate phthisis, from the use of *Uva ursi*. He also speaks in high terms of the restorative powers occasionally to be met with in compound extract of sarsaparilla, as now made in this city. Of mercury he does not speak in terms at all calculated to recommend that medicine for the treatment of consumption. Where a scrofulous taint is evinced, in addition to pulmonary tubercles, he combines the sarsaparilla extract with hydriodate of iron. He praises tonics, but has chiefly confined his trials of remedies in that category to *Prunus virginiana*. Narcotics he has found indispensable as "the less of two evils;" and he has employed hyoscyamus and cicuta with great advantage.

Dr. M. is much gratified with the consequences he has obtained from the tar fumigations, practised according to the method of Sir Alexander Crichton. As the benefit has seemed to Dr. M. to be in exact proportion to the accuracy

with which the instructions given are fulfilled, we shall not apologise for copying the latter.

“An ounce of potash is added to every pound of tar, in order that the latter may be deprived of its pyroligneous acid. The two ingredients, being well mixed, should be boiled for a few minutes in the open air, in order to disengage any impurities, and should then be kept at a simmer in the room of the patient. This is readily effected by putting the composition in an iron vessel, and placing the latter over a spirit lamp or some analogous contrivance.”

The plan of burning tar, rosin, myrrh, and other substances in the room of the sick, without the above precautions, he has found unsuccessful.

Iodine inhalations, as recommended by Sir Charles Scudamore, he has not tried; but his trials with chlorine led to disappointment. We have tried both, and do not wonder at his disappointment. In fact, if iodine did or do act upon tubercles, what useful result is to be expected from applying a substance so irritating to the inflamed mucous membrane? The inhalations of tincture of *Conium maculatum*, however, recommended by Sir Charles as a palliative to do away the irritating effects of his own remedy,* are recommended from experience by Dr. Morton. He quotes them from Dr. Pearson, and makes the tincture with ether, and not, as Dr. Scudamore, with alcohol.

Issues are much used by Dr. Morton on the regions below the clavicles, and at the lower part of the sternum; (he does not tell us with what object this last situation is adopted.) He has found these exutories less inconvenient than setons or antimonial pustules. The time to interpose them with effect he has found to be the onset of consumption; and they have not interfered with the important object of long journies and other exercise. They should not be suddenly discontinued.

On the subject of *diet*, and the diversity required, we shall not abstract any portion of our author's reflections. On that of clothing we think him particularly sound. He expostulates against the preposterous and fatal idea of *hardening* children by exposing them to the causes of disease—insists on the importance of maintaining a healthy action in the skin, and strongly urges the use of plentiful and warm clothing. For the invalid he recommends the buckskin vest. The directions for exercise are also very sound. They coincide, making allowance for an abatement of enthusiasm from a more prolonged experience, with those of Sydenham. The articles on this subject, and on climate and voyages, are very agreeable reading. We are obliged, however, to adhere to our system of abridgment. Dr. Morton recommends inland and dry situations and the air of pine forests for the residence of persons having weak lungs. All experiments of the sea-shore, however mild the climate, and however plausible the first alleged successes, seem to end in disappointment and disaster. On the other hand, the most obstinate catarrhs have yielded in a few days beneath the influence of the balsamic air of the New Jersey pines. The other alternative of voyages across the high sea is also strongly recommended; and considerable space occupied with sketching out a journey through the west and south, and criticising the relative advantages of different ports in foreign countries to which the navigator for health may have recourse. We have found these pages highly

* See his Essay on Iodine Inhalations.

interesting and useful, and should be glad to abridge them, but hasten to the conclusion of our task.

There remain for its completion but a few gleanings and the close. In his concluding observations, Dr. Morton urges the possibility of doing much for consumption. He believes that the anatomical cures occur with sufficient frequency to be an object of real value in practice. He has no doubt, and we agree with him, that many of the apparent recoveries of consumption which pass before our eyes, are real. The contrary opinion, which denies the name of consumption, ipso facto, to every case that recovers, and makes death part of the diagnosis, has long seemed to us to lower the dignity of the human understanding. To hold to this in practice, in opposition to the well-established anatomical facts which exist to the contrary purport, is worthy to be called a superstition. It is adhering, in the face of facts, to an old and fully exploded opinion, founded upon a false hypothesis, that of the impossibility that a wound in the lungs should heal in consequence of the motion of the parts; and it never had any rigorously observed facts to support it. We have therefore a right to assume pulmonary consumption as a malady still fatal, appalling, destructive, calamitous, but yet not absolutely incurable. The kind beneficence of nature bestows cheerful anticipations upon the phthisical patient; and the present error at least ought not to deprive him of them. His cup, like the box of Pandora, is charged deep with every woe—let us leave him *hope* at the bottom.

In the appendix, a statement by Dr. Emerson exhibits the relative mortality of Boston, New York, Philadelphia and Baltimore, by consumption and acute diseases of the lungs. We give the general result, naming the cities in the order in which they suffer from this cause:—Deaths by consumption in proportion to the whole mortality—New York, 1-5.23. Boston, 1-5.54. Baltimore, 1-6.21. Philadelphia, 1-6.38.—By consumption, joined with acute diseases of the lungs—New York, 1-4.07. Boston, 1-4.47. Philadelphia, 1-4.90. Baltimore, 1-5.33.—Whole mortality in proportion to the population—New York, 1-39.36. Baltimore, 1-39.17. Boston, 1-44.93. Philadelphia, 1-47.86.

Article 2 is a highly interesting case of hæmorrhagy from the parietes of a tubercular cavity, similar to those noticed by authors, as above. “Its lining membrane was covered apparently with engorged varicose vessels.” The case is reported by Drs. Elkinton and Ashmead.

Such is the view which our time and space have allowed us to take of Dr. Morton's essay on Consumption. In summing up, we may say, without impropriety or hesitation, that the greatest fault of the work is that it is too *small*. It reminds us of the compliment paid by Byron to Campbell, that the latter was the only poet living in England of whom it could be complained that he had written *too little*. Dr. Morton has committed this rare fault; and the perusal of his work leaves us with a lively wish that he had written and published more. In saying this we mean to confer praise, but we likewise mean to convey censure. It is impossible that in a work of this size the various difficult and interesting questions which arise in connexion with the subject of tubercles could have justice done them. They are passed over with a haste beyond that with which the students of our country should contemplate these important subjects. At the same time, it may be that the industry and leisure of our countrymen are not adequate to the perusal, in large numbers, of the more extended works; and

volumes of the size of the present may be better suited to the demand. Whether this be the case or not, we decidedly wish Dr. Morton to enlarge his subsequent editions; nothing doubting that such will be called for; and he will then be able, not only to add new facts to his publication, but to enlarge, explain and develop various parts of what he has already inserted. We are confident that the public will welcome such an enlargement; and that the work, without denying imperfections, will be considered as an honourable and desirable acquisition to American pathology.

B. H. C.

XIX. *Memoir of the Life, Writings, and Correspondence of JAMES CURRIE, M. D., F. R. S. of Liverpool, &c.* Edited by his son, WILLIAM WALLACE CURRIE. In two vols. 8vo. London. 1831.

The very distinguished services rendered to medical science by the late Dr. Currie, his eminent literary talents, his elegant compositions, and the acute powers of criticism displayed by him, as well as the importance of his political writings, the elevated position he enjoyed in society, and the esteem and affection in which he was held by many of the most celebrated men, in useful and polite learning, who adorned during the latter part of the last and the commencement of the present centuries, the country of his birth and of his adoption, entitle him in every way to the high respect of the members of that profession of which he was undeniably one of the brightest ornaments. Influenced by this opinion, and presuming that such of the readers of this Journal as are aware of the merits of Dr. Currie as a medical philosopher and practitioner, will find pleasure in perusing a sketch of the events of his life, and an enumeration of his services in science and literature; while those who have not yet become familiar with these, will be gratified at being possessed of information on a subject of such deep interest; we have prepared a brief and condensed analysis of the two volumes of memoirs of the life, writings, and correspondence of that distinguished man, for which, as the title indicates, we are indebted to his son.

Prepared, as they are, for the press by one having access to the most correct sources of information, they must be considered as entitled to entire confidence, in regard, at least, to all the events and facts they record. But even had we not the reason of the close relationship of the author to the subject of these memoirs, to lead to the conclusion of the authentic nature of the information they contain, we would feel disposed to place reliance on their accuracy, and to form a favourable opinion of their merits, learning as we do, from a recent publication,* that they received the unqualified approbation of William Roscoe, long the intimate friend of Dr. Currie, and whose testimony, from this circumstance as well as from his great literary renown, must naturally be regarded as of great weight on a question of this nature.

Dr. James Currie, the subject of the present memoir, was descended from a race of Scottish borderers. He was the only son of a respectable clergyman, and was born at the manse of Kirkpatrick-Fleming, in Annandale, on the 31st of May, 1756. He received the rudiments of his education under his father's eye, at the parish school of the above-named place, and afterwards at that of Middlebie, in the same county, to which latter parish his father was translated, and of which he continued minister till his death.

* Life of W. Roscoe, Vol. II. pp. 310-11, Am. Ed.

“As a child, although his spirit was fearless and impetuous, and his admiration of military adventure and martial glory enthusiastic, he was retiring and thoughtful, fond of study, and preferring a solitary ramble by the river-side, or among the neighbouring woods, to the ordinary pursuits of children. The greater part of his eighth year he spent at Allerbeck, in the family of Mr. Irving, a friend and connexion of his father's; and there he appears to have imbibed a taste for natural scenery.” In a manuscript account of himself, which, however he did not carry further than a few pages, he makes the following remarks.

“This place, (Allerbeck,) is beautifully situated among growing woods on the banks of the Kirtle, my parent stream; and there my taste for the beauties of nature first began to expand, and my memory became first impressed with those rural images, which associate so pleasingly with the recollections of infancy, and serve as a sort of solace under the cares and troubles of after life.

“In the neighbourhood of Allerbeck stands or stood in those days, the tower of the Blacket-house, a small border fortress belonging to the family of the Bells, and well known in the traditionary records of the border wars. It was uninhabited, at least by mortal beings, being partly in ruins; but was the residence of a bogle or brownie, a spirit well known in the history of Scottish superstitions, of whom many adventures were related. About half a mile or less above the house of Allerbeck, the river Kirtle has on its east bank a small and beautiful but sequestered holm, the bank immediately opposite rising to a considerable height, and at that time covered with a thick wood. On the top of this bank stood the tower of the Blacket-house, the residence of this demon. On the summer's evening I have sometimes lingered in the holm, gazing on the ruins of the tower above, in the expectation of seeing this aerial being; but though he was active in those days, and had appeared to many persons, I never had a glimpse of him. I heard him indeed, or was told I heard him, at times, felling timber, or seeming to do so, on the opposite bank in the night; and, though nothing seemed more distinct than the sound of the woodman's axe, and the crash of the falling trees, yet it was said the whole was delusion, for that in the morning no injury could be found. There were those, indeed, who held that these sounds were occasioned by real depredators on the wood, who carried off their plunder in the night, and who encouraged the belief of the noise being preternatural to prevent their robberies from being interrupted at the time, or particularly inquired into afterwards. The landlord was at a distance, and the tenants themselves were suspected to have a share in the plunder.”

“These and other similar incidents made me early acquainted with the superstitions of the Scottish borders, a subject in which I have felt some interest, and which has been so amusingly treated by Mr. Walter Scott.”

Young Currie remained until 1769, in which year he lost his mother, at the parish school of Middlebie, under different teachers, enjoying at the same time the advantage of his father's instructions, who was an excellent scholar, and a man of extensive reading, and much general information. During his mother's last illness he was removed to Dumfries, and placed under the care of Dr. Chapman, who, at that time, conducted the grammar-school of that place with reputation and success. The news of her death arrived there on the day of the annual examination of that institution, and was unintentionally communicated to him at the moment he was about to pronounce an oration before the presbytery and magistrates. For doing this, it naturally disqualified him. He remained in the house of Dr. Chapman some time after he had finished his course in the school, studying mathematics and some part of practical geometry.

“Of his companions at this school,” his biographer remarks, “only one now

survives—Alexander Young, Esq. of Edinburgh, who in a recent letter to the editor, says, ‘I am now the only survivor of four most intimate friends at Dumfries school and Edinburgh college. With Dr. William Charles Wells, Dr. George Bell, and myself, your father was always the greatest favourite, all the rest of us were somewhat precipitate and pugnacious, but your father was the peace maker, and the great cement of our mutual friendship, till he went to America; and most sincerely did I rejoice when he returned, and found his old friends at this University, where he soon surpassed us all, and became again the bond of peace and mutual union among us. My intimacy with and sincere regard and affection for him remained undiminished till the day of his death.’”

At the age of about fifteen he accompanied his father to Glasgow, and while in that city caught the spirit of enterprize common among his young countrymen. His original destination was the profession of medicine; but his father was induced to yield to his desire of going out to America in the service of some merchant. He accordingly embarked for Virginia, in 1771, and on his arrival, was established at Cabin point, a small settlement on James’ river.

“This important step had a striking effect upon the formation of his future character. The period when it was taken was pregnant with mighty events, which called into action and improved every faculty of his youthful mind. Separated from his friends, deriving no advantages from the character and dispositions, or society of the individuals to whose charge he was, at that early age, intrusted; exposed at times to disappointments and difficulty, and even danger; and thrown into situations where he was compelled to act for himself, unsatisfied by the counsel or experience of others, his knowledge of mankind was speedily extended, his judgment matured, his power of decision strengthened, and his habit of self-command acquired.”

During his residence in Virginia he frequently laboured under the ordinary diseases of the country, and especially suffered much from the intermittent fever. He soon found that his employment was uncongenial to his taste, and that his hopes of advancement were, to all appearances, not likely soon to be realised. When he had been two years in America, his father died, leaving a large family but ill provided for—a circumstance which added much to the anxiety which his own situation inspired. His feelings on this occasion, and a detail of the events of the period, were conveyed by him in numerous letters to some of his friends. These letters are published in the volumes before us, and will be read with interest, but they cannot be inserted in this brief notice. Notwithstanding the adverse circumstances under which Mr. Currie was then placed, he discharged his duty to his employers with undiminished attention. He thereby acquired their confidence and approbation, and in more tranquil times, as his biographer remarks, he might have pursued the mercantile profession with success.

“Habit had reconciled him to a spot where he had now made many friends, in whose society he was comparatively happy; and it appears that he was likely to form some connexions in business which held out the prospect of great advantage. But the storm approached, which was, in its course, to destroy the ordinary pursuits of life, and to render the colony an overwhelming scene of tumult and agitation, in the midst of which commercial success was remote, if not hopeless, and neutrality of conduct was impossible.”

His letters during this period evince the light in which he contemplated the struggle, and from them it is found, that although he regarded the noble spec-

tacle of an infant nation “starting forth into independence with that strong interest which is congenial to every generous heart,” the youthful attachments and prejudices of Currie were entirely British. He disapproved, however, of the arbitrary measures of the British authorities, and began to entertain serious ideas of returning home—sensible that all expectations of success in his commercial pursuits were at an end, and finding that “neither his feelings nor his judgment would allow him to take any part in the existing differences.”

At the beginning of these troubles he had gone to reside with a near relation, Dr. James Currie, a distinguished physician of Richmond. While staying with this gentleman, he determined to change his line of life, and to adopt the profession of medicine. It was in consequence arranged that he should, as soon as possible, embark for Europe to pursue his studies in Edinburgh, and, after graduating, return to practice in the capital of Virginia.

“This resolution, previous to its being carried into effect, was the cause of involving him in multiplied difficulties, and of putting his life into danger; but in the most critical situations he displayed that judgment and decision which began to mark his character, and for which it was conspicuous in after life.”

The circumstances attending his departure are given in a letter to the Rev. G. Duncan, written after Mr. Currie’s return to Scotland; but the details are too long for insertion in this place. Let it suffice to state, that he embarked in September 1776, that after a passage of about six weeks he arrived at St. Eustatia, and that he immediately proceeded to Antigua. From thence he sailed for Europe, in February, 1777, and after touching at several islands in the way—Montserrat, Nevis, and St. Kitts, and putting in at Fayal, on account of the sinking condition of his vessel, he reached Deptford on the second of May following. After remaining a few weeks in London, he joined his aunt and sisters in Edinburgh, just as he had reached the age of twenty-one.

“From the time of his arrival in Edinburgh, until he took his degree, Mr. Currie was with few intervals, a constant resident at the University. In the winter following he entered on the study of medicine, to which his application was ardent and unremitting, although unfortunately interrupted for a time in the spring of 1778, by a severe rheumatic fever. Every hour not passed at the classes, or in attendance on the hospitals, was given to study and mental improvement. He became a member of the medical society, before which he read, (amongst other pieces exhibiting strong marks of ability and acute observation,) two separate papers on the effect of cold on the living body in health, its operation as inducing disease, and its influence as a remedy; by which he acquired considerable credit, and which prove that his attention was early directed to the subject of his subsequent work—the ‘Medical Reports.’ He was also an active member of the physical society, and of the speculative society, where his reputation for talents and eloquence as a speaker long survived his departure from college. His indefatigable industry as a medical student attracted the notice of the different professors; and amongst these he was distinguished by the flattering kindness of the illustrious Dr. Cullen.”

Nor was Mr. Currie’s attention directed to medical studies only. He succeeded, during this period of his life, in cultivating his taste for general literature, and gained an intimate knowledge of the best poets and historians in his own language. He applied himself also, with peculiar interest, to metaphysical studies, and became deeply versed in the theories of Berkeley, Locke, Hume, and Reid, and for some years the philosophy of the human mind was a favourite

subject for the exercise of his mental powers. "He seems too, at this time, to have paid great attention to composition, and the style of his letters and essays exhibit much of the accuracy and ease of expression for which his subsequent writings have been admired."

After the requisite period of attendance at the University and Hospital, Mr. Currie finished his medical education with honour and distinction, and was qualified, on graduation, to commence his professional career as a physician. Fearing, however, lest by sitting down to seek employment in that capacity he should continue for some time longer his dependence on those near relations, "whose generous assistance was ill proportioned to their means," he resolved to embrace the first opportunity which might offer to relieve them of expense on his account, and accordingly determined to seek a medical appointment in the army. He was nominated by General Sir William Erskine to be surgeon's mate in his own regiment, with the rank of ensign. Hearing, about this time, that it was the intention of government to form a medical staff in Jamaica, he became desirous of obtaining an appointment as physician to the expedition. As the latter was to sail in a few weeks, and the stated day for conferring degrees at the University of Edinburgh was some months distant, he repaired to Glasgow, where no such impediment existed, and there, after a compliance with the accustomed forms, received his diploma in April, 1780.

Dr. Currie enlisted much interest in support of his intended application, and proceeded to London provided with the recommendations and best wishes of the professors of the university and of many other friends. But upon his arrival in the metropolis, he found that the influence of the surgeon-general had procured the situation in question for another young physician of acknowledged merit. He determined, nevertheless, in pursuance of his intention upon quitting his friends, to proceed at all events to Jamaica, and endeavour to establish himself in practice in that island, from which he might, if unsuccessful, find many opportunities of passing over to Virginia. He took his passage, accordingly, in the fleet about to sail; but various delays occurred to prevent its departure, and were the cause of his spending a great part of the summer in London, where he extended his acquaintance among individuals of distinction in the literary world, as well as of eminence in his own profession. But although determined to prosecute his plan of going to Jamaica, he had not concealed from his friends his desire of remaining, if possible, in England.

"He wrote particularly to his near relation, Dr. James Currie, of Chester, who had been then some time settled in practice in that city, and who was commencing that eminent and successful professional career which has so greatly distinguished a long life of activity and usefulness. To his intimate college companion, Dr. Richard Worthington, of Wrexham, he also wrote; and from each of these zealous friends he received a pressing invitation to visit them, accompanied by earnest remonstrance against his going abroad, and by their opinion, that, with a proper opening, his success at home was by no means doubtful. Accepting their invitation, he repaired to Chester, and on his arrival there he learned that both Manchester and Liverpool presented favourable prospects for a young physician. After a short visit to the former place, he at once decided upon selecting Liverpool as the field of his practice; and accompanied by Dr. Currie, for the purpose of being personally introduced to the different friends of the latter, he established himself in that town in October, 1780."

Through the great exertions and kindness of Dr. Currie, who procured him numerous introductions, his acquaintance in Liverpool soon became very general, and although he was not at first pleased with the society of that city, as it then existed—finding, as he stated, the men shy in their manners, with ideas and opinions very different from those to which his college studies had accustomed him, and unrefined in their tastes and pleasures—he became gradually reconciled to the place, and soon gained the esteem and confidence of the inhabitants. His friend Dr. George Bell, a young physician of extraordinary talents and uncommon character, settled at Manchester, in March, 1781. This event promised to be a source of much happiness to Dr. Currie, and it was soon arranged that frequent meetings should take place between them at Warrington. These meetings were continued until interrupted by the untimely death of Dr. Bell. In April of the same year, (1781,) Dr. Currie was elected one of the physicians to the Dispensary—

“And though his unanimous election after only six months’ residence in Liverpool is a proof of the zeal and activity of his friends, as well as of his own exertions, it must be allowed to be likewise an indication of the growing impression of the public in favour of his medical skill and character. A man endowed with mediocrity of talents might, indeed, succeed against a rival of greater abilities than himself, but it is not likely that such a man would be chosen entirely without opposition.”

Dr. Currie became a member of several associations, and among these of two card clubs! and a bowling-green club; all of which he joined to extend his acquaintance, and conciliate the good feelings of the inhabitants among whom a taste for such amusements was very general. He belonged also to a weekly literary society. But, except the last, he attended none of these meetings regularly, being much occupied by his duties at the Dispensary and entering a good deal into general company.

“The reëstablishment of the literary society, which he was the principal means of reviving in a new form, and which held its first meeting at his lodgings, was a source of peculiar pleasure to him, as it gave an impulse to his literary pursuits, and brought him into acquaintance, subsequently ripened into friendship, with men whose names have contributed to confer a character on the town of Liverpool. Mr. Roscoe, Mr. Rathbone, the Rev. John Yates, Professor Smyth, (of Cambridge,) the Rev. W. Shephard, and other intelligent and estimable individuals were members of this society at its commencement, or in the course of its duration. On Dr. Currie’s election as president, he delivered an address from the chair, on the objects of such societies and on the mode of best conducting their proceedings. This address he was requested to publish as a preface to the laws of the society, and he at first consented to do so, correcting it with that design, but from diffidence he afterwards abandoned his intention.

“The meetings of the literary society were continued for eight or nine years, but some time after the commencement of the French revolution, although it was a rule that no political subject should be discussed, it was thought prudent, owing to the heated state of the public mind produced by that event, that they should cease.”

Towards the middle of the year 1781, the ravages of the small-pox engaged the attention of the medical profession in Liverpool. They were strongly in favour of a system of general inoculation, and Dr. Currie, who took an active interest in the measure, was appointed to draw up an address to the inhabitants.

Prosecuting with zeal the duties of his arduous profession, his success was equal to his deserts, and a few years residence in Liverpool firmly established his reputation for talents, and for those qualities which merit general esteem, while an intimate acquaintance procured him the confidence and affection of his friends.

In January, 1783, his happiness was increased, and his prospects of independence and professional success materially improved, by his marriage with the daughter of Mr. William Wallace, an Irish gentleman, established as a merchant in Liverpool, and who, as the biographer takes good care to inform his readers, was lineally descended, (as well as his wife, who was his cousin german,) from the Scottish hero of that name. The pleasures resulting from this event and from his success in his profession, was, however, destined to receive a check from a source little to have been anticipated. In January, 1784, Dr. Currie was called to Manchester to attend his friend Dr. Bell, who, after a rapid illness, which baffled the skill of his physicians, sank under his disease. The consequence of his travelling by night at a peculiarly severe season, and of exposure to the combined influence of agitation, loss of rest, and intense anxiety, was an alarming illness—"cough and spitting of blood, the attendants of pleurisy, and frequent precursors of consumption." By active depletion, the violence of his complaint was arrested, "but it left him in a state of debility that seemed, in his own mind, too clearly to forebode that he also should be a victim to consumption, in addition to those of his family who had died, or were dying, of this fatal disease." In compliance with the wishes of his friends, and more as a duty than from any sanguine expectation of benefit, he undertook a journey to Bristol.

"His recovery was for some time doubtful, and was retarded by many distressing causes operating on his spirits, at a time when his enfeebled frame could scarcely support existence. What contributed at length most essentially to the removal of his complaint was gentle exercise, chiefly on horseback. A very full account of his case, with his own observations upon it, and of the state of his mind when the issue was uncertain, was published in the *Zoonomia*, some years afterwards."

A short time after his return to Liverpool, he was requested by the members of the Manchester Philosophical Society, to write a memoir of Dr. Bell, accompanied by a translation of a thesis by the latter, on the physiology of plants, by which he acquired great credit in the University of Edinburgh. This painful task Dr. C. promised to undertake, and after a delay of a few months, occasioned by the feeble state of his health, he was enabled to complete it. "This memoir, which was Dr. Currie's first appearance publicly as an author, placed him at once in a high rank in point of literary composition." It was published in the second volume of the Transactions of the above-mentioned society, and is given in the appendix of the work before us. From his letters to his friends we find, that the state of Dr. Currie's health continued for a long time extremely uncertain, and that his progress towards recovery was slow and feeble.

Dr. Currie took an active part in the efforts made in the early part of the year 1787, and subsequently, by those who endeavoured to promote the abolition of the African slave trade, and partook of the feelings which animated the great majority of the British on this important subject. As the town of Liver-

pool was at that time, chiefly remarkable for the extent to which it was concerned in this traffic, his position was of extreme difficulty and delicacy. But Dr. Currie was not one of those enthusiasts and fanatics who were anxious to arrive at their ends, be the consequences what they might. He knew that many of those engaged in the trade were generous, affectionate, and humane in private life; liberal, enterprising, and intelligent in public; and it did not escape his observation that the general indignation against the *trade itself* was equally directed against the *individuals* concerned in it, without allowance for the circumstances in which they might be placed. "He abhorred the slave trade, but he was anxious that excess of enthusiasm and ardent feeling should not injure the cause." Under such impressions, but without communicating his intentions to any of his mercantile friends, he wrote a letter to Mr. Wilberforce, in which he enforced those views with much eloquence. This letter produced a friendly reply from Mr. W. and was the occasion of a correspondence at different intervals respecting the slave trade. By temperance in conduct and language, he contributed to advance the cause in Liverpool, and to aid the efforts of Mr. Roscoe, Mr. Rathbone, the Rev. John Yates, and many others of its distinguished advocates. He was a joint author, with Mr. Roscoe, of *The African*, a poem which appeared anonymously in the London papers of March, 1788, and which produced much sensation at the period.

In 1786, Dr. Currie was made one of the physicians to the Liverpool Infirmary—an institution which always received his most zealous support and attention. In 1789, a proposal was made to erect a Lunatic Asylum in connexion with the latter, and a public meeting of the subscribers unanimously recommended the adoption of the measure to the benevolent support of the public. On this occasion Dr. Currie took a leading part and published two letters in favour of the measure, which were much admired. The asylum was erected in 1790. Nor were his exertions restricted to matters of local interest. In the last-mentioned year, the dissenters throughout the kingdom made a general application to parliament for the repeal of those obnoxious laws, the corporation and test laws.

"Resolutions on the subject were passed unanimously by the dissenters of Liverpool, which were drawn up by Dr. Currie, whose friends and connexions lay very much among that body, and which were received with respect, even by those who were strongly opposed to the repeal. They were distinguished for the moderation of temper and language in which they were expressed."

"Among those friends whom Dr. Currie had the happiness to possess, there was none with whom he lived in habits of greater intimacy than Mr. Roscoe, or to whom he was more strongly attached. Their friendship was cemented by a common taste for literature and intellectual pursuits, and by the congeniality of their sentiments on many important subjects which affect the welfare of the human race. In after life, their names became associated in the literary world. Few strangers of eminence arrived at Liverpool without an introduction to Mr. Roscoe and Dr. Currie; and their houses were the resort of men of learning and celebrity from all quarters. In closest intimacy and friendship with them lived Mr. William Rathbone, a man, for whose generous ardour in the cause of civil and religious liberty, native eloquence, fearless vindication of the oppressed, public spirit, and extensive charity, they both felt equal respect and admiration."

In the year 1790, Mr. Roscoe and Dr. Currie commenced a series of essays

under the title of *The Recluse*. They appeared in the *Liverpool Weekly Herald*, but were not continued beyond twenty—the greater number of these being written by Mr. Roscoe. Two years after Dr. Currie took an interest in a very great public question, which engaged the attention of his fellow townsmen—the opening of the trade to India. On this occasion a public meeting unanimously adopted and passed a series of resolutions and petitions, which were drawn up by Dr. Currie.

“While Dr. Currie’s talents were thus exerted out of the immediate sphere of his profession, his medical reputation was at the same time steadily increasing. In 1790 he had been elected a member of the London Medical Society, when he wrote a paper on Tetanus and Convulsive Disorders, which was published in their Transactions. And in the present year, (1792,) he was chosen a Fellow of the Royal Society and also of the Royal College of Physicians in Edinburgh. On the first of these occasions, he communicated a very curious ‘Account of the Remarkable Effects of a Shipwreck,’ which appeared in the Transactions of the learned body in question, and which contains the groundwork of his *Medical Reports* on the Affusion of Cold Water in Fever and other Disorders, which he subsequently gave to the world.”

The author of the memoir before us remarks, that however disposed Dr. Currie was to devote himself to professional or literary pursuits, the period was now arrived when it was impossible for a man of keen sensibility and deep reflection, to exclude the impression of public events from his thoughts; and that for some time the attention of this gentleman was absorbed by the rapidly-passing occurrences in a neighbouring kingdom, and their probable consequences on the fortunes of England. When perseverance in the war with France had been determined upon, in opposition, as he conceived, to the true interests of his country, he published the celebrated letter from *Jasper Wilson* to Mr. Pitt, which appeared in June, 1793, and of which it is said ten thousand copies were sold.

“Its reception was, in many respects, much more favourable than the writer had expected. It acquired a degree of celebrity, indeed, which has distinguished it from all similar productions of that day, and which, however deserved and however honourable, was the source of much uneasiness to the author.” “This letter was warmly admired by the opposition in parliament, and by all those who disapproved of the war; and its temper and spirit were spoken of with praise by many who disputed the author’s conclusions. It rests on unquestionable authority, that soon after it came out, it was favourably mentioned by Mr. Pitt himself, particularly that part of it which gives a kind of analysis of revolutions. It was ascribed to various persons; and to Mr. Sheridan, amongst other distinguished leaders of the opposition. By some it was considered the production of more than one hand; but Dr. Currie was the sole author. Mr. Wilberforce alone was acquainted with his intention of publishing, who certainly was not a convert to his opinions, but respected his motives, and promised to keep his secret—an engagement which, as far as this gentleman was concerned, there is every reason to believe was fulfilled.”

Dr. Currie gave a very strong proof of the effects produced upon his feelings by the political state of England at this period, in entertaining the idea—notwithstanding the high professional reputation and extensive practice he had obtained—the valuable friends and connexions he possessed, and the general respect and esteem he commanded, of quitting his country. To that effect he wrote, in July, 1793, to his kinsman in Virginia. But the idea seems

to have been transient; for in a letter to the same friend, dated little more than a year after, he says I shall stick to this country, whose government I venerate and respect, however much I have disapproved and deprecated the measures of its present administration. With the publication of Jasper Wilson commenced and ended Dr. C.'s political writings. He now endeavoured to withdraw his attention from public calamities "which he had foreseen, by which his feelings were deeply affected, but which it was out of his power to avert or alleviate," and began to carry into execution his intention of publishing the result of his professional experience in febrile diseases. "He had made considerable progress in doing so, when an event occurred, which, for a time, diverted his thoughts into a new channel, by which his literary reputation was some years afterwards widely extended." Allusion is here made to the death of the celebrated poet, Robert Burns, (which took place in July, 1796,) whose life Dr. C. undertook to write, so soon as his medical work should be finished and given to the world. The latter task was accomplished in the following year, (1797,) and the work appeared under the title of "Medical Reports on the effects of Water, cold and warm, as a Remedy in Fever and other Diseases, whether applied to the Surface of the Body or used Internally."

"The success and sale of this work were probably equal to those of any medical publication of the present or past times. To this several causes contributed;—the previous reputation of the author; the novelty of the practice recommended; the modesty and caution with which it was announced; and the almost entire absence of those technical expressions, by which medical works are generally rendered unintelligible to all but members of the profession. Dr. Currie has succeeded in an extraordinary manner, in clothing professional details in a distinctness of phraseology and elegance of style, combined with a degree of feeling which gave to the *Medical Reports* an interest far beyond what might be looked for in a publication of that nature. The simplicity and candour, too, with which the unfavourable results of the practice are given, tend strongly to gain the confidence of the reader; and altogether it may be doubted whether any improvement in medical science was ever presented to the world in a more attractive garb."

The author of the memoirs enters into some details on the practical merits of the Medical Reports. As, however, he is not himself a professional man, his observations cannot be regarded as of sufficient interest and value to be noticed in this place. Nor shall we undertake to present our own views on the subject, persuaded as we are that our readers are already acquainted with the method of practice advocated in the work in question, and regarding the latter as one of those publications which should be in the hands of every practising physician. In reference to it, therefore, we shall only observe, that to the *discovery* of the remedial effects of cold affusions, Dr. Currie could lay, and indeed laid, no claim. So early as 1768 it was introduced into the West Indies by Dr. William Wright, of Edinburgh, whose account of it was first published in the *London Medical Journal*, for 1786, and in 1791 a general statement of its advantages, by the late Dr. Brandreth, of Liverpool, (the friend and colleague of Dr. Currie,) was inserted in Duncan's Commentaries. The use of cold water in ardent fevers, internally and by immersion, was also, as the biographer properly remarks, common among the ancients; but affusion on the surface of the body, as a remedy in fevers, seems to have been unknown to them. To Dr. Wright, he

adds, with whose narrative the Medical Reports commence, must be ascribed the honour of having introduced the cold affusion into notice in modern times. But we undoubtedly owe to Dr. Currie *the first specific directions for its safe application*.

Dr. Currie now commenced the task of writing the life and editing the works of Burns, which, as has been stated, he had undertaken to do. After encountering many obstacles, arising from the difficulty of obtaining the necessary information—the whole of which is minutely detailed in the volumes before us, Dr. Currie completed his task, and the work made its appearance in May, 1800, nearly four years after the death of Burns, under the title of “The Works of Robert Burns; with an Account of his Life, and a Criticism on his Writings; to which are prefixed some Observations on the Character and Condition of the Scottish Peasantry;” in 4 vols. 8vo.

“The completion of his toilsome task was repaid by general admiration of the manner in which it had been executed; and the obtaining £1200 from the booksellers for the family of Burns, amply compensated for many a sleepless night and weary hour. Testimonies of approbation poured in from every quarter, and his literary reputation became not inferior to his character and name as a physician.”

The family and intimate friends of Burns—those who may be supposed to have known him best and loved him most—expressed themselves perfectly satisfied; and at a time too, when, as the biographer remarks, the jealous sensibility of affection, assisted by the strength of comparatively recent recollections, must have naturally been strongly alive to any errors into which Dr. Currie might unconsciously have fallen. The work passed through four editions, of 2000 copies each, during the life-time of the author, and he died under the grateful impression that his benevolent exertions, and his disinterested sacrifice of time and health, had been crowned with entire success, and that the seal of public estimation had been affixed to his labours. How little did he anticipate that many years afterwards various admirers and biographers of Burns, (and among others his brother Gilbert Burns himself, whose letters in approval of the work are given in the memoirs before us,) would have appeared before the public, with the declared object of vindicating the memory of the poet from the exaggerations and misrepresentations affecting his character, which Dr. Currie is charged by them with having admitted into his life!!

Be this, however, as it may, the publication of this Life brought the author into epistolary correspondence with many literary men of celebrity, and among these with Sir Walter Scott, who wrote to him respecting his intended work, the *Minstrelsy of the Scottish Border*. Lord Cullen, son of Dr. Cullen, applied to him for assistance in writing the life of his father; and after the battle of Alexandria, the manuscript journal of General Moore, who fell afterwards at Corunna, was offered to him, with a wish that he would write the history of the campaign of Egypt. But these and other applications, neither his health nor his time would allow him to comply with.

About this time, England being threatened with invasion by the French, a call of patriotism was made on the inhabitants of the whole kingdom. Public meetings were held, and at that which took place at Liverpool Dr. Currie took an active part, and was one of the committee appointed on the occasion. This,

however, did not prevent him from interfering energetically in behalf of the French prisoners, who had been deprived of a portion of their rations, and were left without sufficient clothing. By his proceedings in this matter, he incurred the undisguised displeasure of government. Dr. Currie took an active part, in conjunction with his friend Mr. Roscoe, in the establishment of the **ATHENEUM**. He took a strong interest in the formation and opening of the **BOTANIC GARDEN**; and in 1801 he had the gratification of proposing and carrying by acclamation, in general vestry, a resolution, imperative on the church wardens and parish committee, for the immediate erection of a House of Recovery, or Fever Wards, for the reception of the poor when labouring under fever.

“The period was now arrived when Dr. Currie might consider himself in possession of those blessings which are usually thought to make life desirable. To the full enjoyment of these, however, health, the first of blessings, was unfortunately wanting. His early illness, of which an account has been given, and which his youth had enabled him to surmount, left him still liable to a recurrence of those symptoms, to which his constitution was predisposed; and scarcely a winter passed, in which he was not visited by severe inflammatory attacks, attended by cough and difficulty of breathing, for which he found venesection the only effectual though debilitating remedy. Alluding to these in one of his letters about this time, he says—‘I have a sister under my roof, dying of a consumption—a disease by which three others of my sisters have been carried off, and to which I think it very probable I myself shall fall a victim. Many are the attacks I have parried. Certainly, I combat with some skill, and with coolness, but I expect a thrust through the lungs one day or other.’”

He was induced in the summer of 1802, to undertake, for the benefit of his health, a journey to Burton, in company with his friend Captain Graham Moore, who had returned from sea in bad health. But the weather being cold, wet, and windy, he derived little benefit from the journey. In May, 1804, he visited Scotland, with the hope that a journey in the open air might be of benefit to his health. In a letter, dated June 19th, 1804, he remarks, that from the month of October till May, he lost by venesection two hundred ounces of blood, and took at least eleven ounces of tincture of digitalis; that he could not otherwise have lived; but that his langour and oppression were not to be told. For a short while, however, after his return from Scotland, his health continued such as to give his friends the hope that it had experienced considerable improvement—a feeling which was encouraged by the circumstance, that his general appearance did not always convey the idea of illness, even when he was far from well. In August he was sent for by express to Manchester, in consequence of the fatal illness of Dr. Percival, and although in delicate health made several hurried visits on this melancholy occasion.

“This was the second instance of Dr. Currie’s being summoned to Manchester to the death-bed of a much-valued friend and distinguished member of his own profession. In each case his exertions were followed by an illness of the most serious nature.” “The extreme hurry and agitation which had marked his journeys to see Dr. Percival, and the strong interest which he had felt where so valuable a life was concerned, combined to assail an already enfeebled frame. He was again taken ill, and threatened with symptoms which excited the lively apprehensions of his family. Indeed, he was himself strongly impressed with the belief that if he passed the ensuing winter in Liverpool, the consequences would, in all probability, prove fatal. The choice of a milder residence, therefore, became the subject of his frequent considerations.”

Having taken the advice of his friends in reference to the most eligible spot within the kingdom,—for he decidedly refused to go to a foreign country, Dr. Currie at the close of November, 1804, went by slow journeys, and accompanied by his daughter, to Clifton, and after a few days rest proceeded to Bath, where he remained a month. Here he appears to have received some benefit; for in a letter of 19th December to his friend Mr. Roscoe, he states, that on the general subject of his health he can speak satisfactorily—that he was benefited by the journey, though he caught cold in the course of it; but that this cold was gone off, and that with it his cough had in great measure disappeared. He proposed to return to Liverpool early in January; but at that time he suffered a relapse, and was in consequence unfit for the journey. Not enjoying all the quiet at Bath which he found necessary, he went to Clifton, where he passed this and the following month; making occasional visits to Bath of a day or two at a time—a plan which was attended with temporary benefit. He now found, however, that he had derived so very little advantage from his absence from Liverpool, as to make it a matter of great doubt whether he ought, in prudence again to expose himself to a northern climate; and the necessity of giving up every other consideration to the chance of regaining health, induced him finally to determine on making Bath the place of his future residence. This was effected in March, 1805. His reception at that place had always proved highly gratifying. By the members of the profession in general, he had been met with courtesy and respect—by some, especially by Dr. Falconer and Dr. Haygarth with friendly cordiality; he had been well received—his acquaintance had been even courted by the best society, both resident and casual, with which that city abounds; and on settling permanently in that place, he found no diminution of that notice and attention, which might before have been the result of kindness to a transient visitor. He fell at once into an easy and extensive practice, “and had soon reason to believe, that if his health were only restored, he might expect any success in his profession, which it was possible for one man to attain.” Dr. Currie seemed, for a short time, to be decidedly improved in health, but this state was not long maintained—his cough and oppression returned, and he suffered from want of rest. About this period of his life he composed an *Address to Sleep*, with the exception, as the biographer states, of the first stanza, which seems to have been written differently some years before.

“It is the only poetical production of his riper years, and was composed under circumstances, which would impart interest to a poem possessing even slighter claims to be admired.”

Dr. Currie's intention was to pass the hot months away from Bath. His journey was delayed, however, for two months, principally by his desire to complete the fourth edition of the *Medical Reports*, which had been long called for by the booksellers. At length early in August he quitted Bath preparing to be away a month or six weeks, and intending to coast along the south of England as far as Dover. But he was not able to proceed further than Sidmouth, where he arrived on the eleventh. On this day he grew worse, and expressed his opinion to his son, that he should never leave that place. His symptoms were gradually aggravated, but till a week previous to his death, his mental powers retained all their vigour.

“Ten days before he died, he dictated to the writer an account of his poli-

tical life and opinions, which will be found in the appendix, and which closes with the following passages, added in his own hand-writing. This is intended as a defensive document to be used if rendered requisite by any attack on my character or memory. On any thing that respects my memoirs, including the affair with Chalmers, I wish my loved and excellent friend Mr. Roscoe to be consulted. If health and engagements, or feelings stand in the way, I shall be quite happy to suppose myself in the hands of Dr. Aiken. To this excellent friend my last blessings! and to theirs!

“I am sick and exhausted. I hope to close my eyes in peace with the living generation, and with hope in the expected union with the friends whom I venerate and love, beyond the grave. Should any memoir be thought requisite of me, let it be short, and delicate to others.”

In the valley of the shadow of death—so, as we learn from the biographer, Dr. C. expressed himself, he declared, that he felt neither tremors nor fears at the thought of futurity, and after long and severe sufferings which he bore with characteristic firmness, and with a patience which he *thought* and *hoped* would be an example to his family, he breathed his last on the 31st of August, 1805, at the age of forty-nine years and three months.

“His disease proved an enlargement of the heart, with incipient ossification of its adjoining vessels, accompanied by extraordinary wasting and adhesion of the right lung.”

“The cast of his mind was grave and energetic, tinged with a secret, pensive melancholy, partly no doubt proceeding from temperament, but possibly strengthened by the asperity of his early fate, and by the incidents of his profession, acting on a heart of great feeling. While in no respect incapacitated by this disposition from engaging in the active duties to which he was called, he was led by it to find a charm in the private circle superior to the attractions of general society, and to indulge in those intellectual pleasures which memory or imagination can bestow. He was not lavish of confidence or profession; but the few who had his confidence and regard, possessed both very unreservedly.

“From nature he received an understanding of the first order, which was improved by study, enlarged by early intercourse with the world, and matured by observation and reflection. His knowledge of human nature was profound, and was evinced by his skill in the analysis of individual character. His reach of intellect was equal to the discussion of the most abstruse and difficult subjects of metaphysics, politics, or morals, and his views were clear, comprehensive and acute. He possessed uncommon powers of conversation, illustrating each topic with singular clearness, and with great strength and happiness of expression; and he had so much candour, was so entirely free from prejudice, and was such a master of reasoning, that it was difficult to converse with him seriously without improvement.”

It appears from a letter addressed by Dr. Currie to Dr. Wright, that it was his intention to write upon gout and on insanity. But ill health and his numerous avocations prevented him from accomplishing that task. This is the more to be regretted, as those diseases require elucidation, and to the investigation of them “he was peculiarly fitted by his philosophical spirit of inquiry and his accuracy of observation.”

XX. *A Memoir on the Advantages and Practicability of dividing the Stricture in Strangulated Hernia, on the outside of the Sac. With Cases and Drawings.* By C. ASTON KEY, Senior Surgeon to Guy's Hospital, and Lecturer on Surgery, &c. London, 1833. pp. 161.

Strangulated hernia is an accident much more rare in this country than in Europe, partly because of the facility with which the humblest of our fellow citizens obtain the necessaries and comforts of life, without that unremitted and overstrained exertion required in communities with more dense population, and partly because free air, proper exercise, and substantial food, are actually enjoyed by the poorest operatives, and even by the residents in most of our public charities; thus we are protected from many of the predisposing and exciting causes of hernia.

But this happy state of things cannot long continue. The rapid growth of our large cities, the competition among rival manufactures, the slavery of fashion and luxury on the one hand, and that of poverty and vice on the other, must speedily lessen our advantages, and every year's experience proves that hernia, in common with all the other consequences of relaxed fibre or hard labour is continually increasing in frequency.

The importance of the subject, and the very serious character of the operations occasionally required in this disease, has induced anatomists and surgeons to bestow unusual attention upon its history and treatment, so that it may be regarded with justice as one of those departments of professional investigation that approach most nearly to accuracy in principle and perfection in practice. Every fact or contrivance that may tend to improve the treatment of hernia, may therefore be considered as reflecting double lustre upon its discoverer or inventor, on account of its usefulness and its difficulty; and the work before us is not without some pretensions of this nature.

In our great centres of medical information, the cities that are the seats of universities, the general principles of practice in hernia are, we believe, well settled, and the principal addition to the stock of knowledge that the profession, in such situations, will receive from the little memoir of Mr. Key, consists chiefly in the details of a few interesting cases, and in some proposed and tested modifications of certain plans of operating already practised; but those large and highly respectable members of the profession, who have been for years removed to a distance from schools and libraries, and who are compelled to act with promptitude in cases few and far between, without the aid of extensive experience, or the means of consultation, will find the whole essay interesting as a fair investigation of a point that may be regarded as still open to discussion.

The memoir commences with a view of the alarming mortality following the old, or as it would appear from Mr. Key's statement, the more common mode of operating in strangulated hernia, that in which the sac is freely laid open and the intestine exposed. He gives a brief statement of thirteen fatal cases in the practice of Guy's Hospital, all occurring within a few years. Among them we notice several that, not to use too strong an expression, surprise us considerably; and more particularly the first case, in which no operation was performed. The

man, admitted for a venereal affection, was suddenly seized with indisposition, which on the second day assumed well-marked symptoms of ileus.

“The matter vomited became stercoraceous, *and the constipation could not be overcome by the remedies prescribed.* He died on the seventh day from the attack, without mentioning the existence of a hernia to *the apothecary* under whose treatment he was. On examination, a knuckle of the ileum, three inches in length, was found in an inguinal hernial sac, &c.” p. 12.

Do such cases occur in Guy's Hospital? The remaining cases were all subjected to the peculiar operation mentioned above. In several of the patients, portions of intestine were left in the open sac for reasons that, as they are stated, are any thing but satisfactory. In one, (*Case II.*) the surgeon thought the bowel in a state approaching to gangrene, but after the death of the patient, from peritoneal inflammation, the prognosis does not appear to have been verified; in another, (*Case III.*) the operator found the intestine thickened, and suspected internal ulceration. The patient died in the same manner, and here again the autopsic examination proved him in error! Even if ulceration of the internal coat were proved to exist, would this circumstance generally warrant the permanent exposure of the part? We think not. In case seventh, the return was prevented by the distention of the abdomen. The intestine was very little changed in colour or texture. Enemata and purgatives produced copious feculent motions after the operation, but he died of local enteritis, without general peritonitis, on the second day. There is more apparent probability of the propriety or rather the necessity of the treatment in this than in the previous cases, but the experienced surgeon will feel some surprise at the impossibility of reduction in a case free from adhesion, or general intestinal disease, and permitting free evacuations to follow ordinary medicines. No attempt was made to relieve the distention by puncture.

In three of the cases the intestine was found sphacelated, and the propriety of opening the sac was therefore undeniable. In several others, the death of a portion or the whole of the strangulated fold, occurred subsequently to the reduction, and these cases would seem at first sight to militate against the propriety of dividing the stricture, and reducing the bowel without opening the sac. Our author, however, attributes these disasters to the exposure and handling of the parts after the opening of the sac. In one of the instances, the mortification is justly charged to the violence used in the reduction, and not to the peculiar nature of the operation. With one exception, the patients all fell under peritoneal inflammation.

Thus we see that of these thirteen cases, adduced in proof of the great danger resulting from the free exposure of the contents of a hernial sac, several have little bearing on the question; some, because their nature rendered that exposure absolutely necessary and perfectly proper; others, because the evils resulting from errors of practice are so combined with those depending upon the character of the operation that it is difficult to distinguish them. Yet facts enough remain to warrant the general deductions of the author, which follow at the conclusion of the series. He proves that none of these cases could have been injured by the division of the stricture without opening the sac, and that many of them would have been exposed to vastly less danger by such a procedure. He alludes to the great evils resulting in many instances from the undue

force employed in the taxis, which is generally pushed very far, before the surgeon is willing to resort to an operation so highly dangerous as that which is in common use, and thinks that the milder measures advocated in his essay, are calculated to remove the dread of the operation, and to prevent the desperate exertions often made to avoid its performance.

Mr. Key then proceeds to give us a short history of the operations for the reduction of strangulated hernia, in which the intestine is but slightly or not at all exposed. He quotes Garengeot's notice of Petit's operation for a femoral hernia, in 1712, in which he divided the stricture external to the sac, and then reduced the contents; and alludes to his after labours both in practising and defending the measure.

He next describes the two operations of Munro, and the four cases of that author, in three of which he operated in the manner of Petit, and in the fourth he was compelled to open the sac, because an unusual thickening of the neck of the sac occasioned a continuance of the stricture after the division of the tendon, by the other method.

We might congratulate ourselves upon the fact that even the errors of theory not unfrequently induce the extension of valuable practical discoveries, were it not that the passions of men, when once engaged in contention as to principles, lead them, too generally, into contemning alike the erroneous views of their antagonists, and the facts thus strangely ascertained, even after the latter have endured the test of experience. The very inaccurate notions of Munro, as to the stimulating properties of atmospheric air, led him to adopt the operation of Petit in those cases to which it is applicable, and also induced him to modify the usual method when circumstances compelled him to open the sac. Some of his opponents in the memorable debate on this subject, not content with exposing his mistakes, have condemned or decried the valuable surgical improvement founded upon them, regardless of the other and more just arguments by which it may be supported.

Mr. Key, in comparing the claims to originality of Munro and Petit, demands too much for the former writer. It is curious that he should assert, (at page 39,) that Petit advocated his peculiar method only in inguinal hernia, when the first operation of that surgeon, mentioned but ten pages before, was performed on a crural hernia! It is much more probable that Munro was the first to divide the stricture external to the sac, at the internal abdominal ring; this achievement, together with the plan more peculiarly his own, that of substituting a very narrow incision close to the seat of stricture, in the place of the former free incisions, when the opening of the sac is rendered necessary by peculiar circumstances, are a sufficient merit in themselves.

Mr. Key then notices two operations performed by Sir A. Cooper, without opening the sac; one on an inguinal hernia in 1803, the other on an umbilical hernia in 1807; also a third case of irreducible umbilical hernia, in which the same surgeon operated after the manner of Munro, by making a small orifice in the neck of the sac, into which he carried a probe-pointed bistoury, and dilated the stricture upward. After noticing the general direction of Boyer, that the sac should not be opened in large inguinal hernia, our author presents us with a glowing picture of the evils following the mode of free incision, extracted from an anonymous correspondent of the *Edinburgh Journal* for 1824—a

thorough disciple of Munro. We extract the first paragraph, because we have seen in one instance something that would almost warrant the description it contains, though we trust that but few practitioners in this country have witnessed precisely such a scene. We are, however, assured by Mr. Key, that "his account, though somewhat highly coloured, is true."

"The surgeon," says this correspondent, "divides the integuments by a wound several inches in length, and then proceeds by an incision of similar magnitude to lay open the sac. After the viscera thus unhallowedly exposed to the pernicious stimulus of a medium unusual to them, (viz. the atmospheric air,) have been felt, fingered, turned over, and examined *secundum artem*, the next step is to divide the stricture, which one might suppose to be the first object in view. The protruded bowels are at length reduced; but not until, in all probability, they have been brought into contact with a number of irritating substances, such as sponges applied to the wound, the fingers of the surgeon, or perhaps, even the sleeves of his coat. After all this, can it be wondered at, if abdominal inflammation comes on so often and kills the patient?" p. 43.

Certainly under such treatment there are causes enough of inflammation present, without the necessity of any irritating property in atmospheric air to determine its attack.

Mr. Key next proceeds with a very fair and candid statement of the advantages which result from avoiding the exposure of the contents of a hernial sac. In the course of his remarks he narrates several very interesting cases, and alludes to others, showing the diminished liability to peritoneal inflammation resulting from this mode of treatment, and glancing at others in which accidental hæmorrhages and other complications are productive of much less danger than would result from similar causes if the sac were opened. Then follows a statement of the objections raised against the operation of Petit, and the very able rejoinder of that author, together with a review of the opinions of some more recent surgeons. These objections are chiefly directed against the employment of the measures of Petit under certain circumstances, which even their advocates acknowledge require a different mode of treatment, but by a very common mode of reasoning the arguments against excepted cases are urged again and again against the use of the operation in all cases. The whole ground of the question is examined, and we think impartially, by our author. The peculiar instances in which it becomes necessary to open the sac are fairly stated, as are also those in which the integrity of the sac should be preserved. The pretensions of this mode of operating may be condensed into an aphorism, that were it not for the almost unaccountable opposition of some distinguished men, and the frequent resort to the old method where no symptoms appear to demand it, we should expect to see adopted as a postulate in every work on hernia. Whenever it would be desirable to effect the reduction of a hernial tumour by the taxis, *if possible*, the impossibility of the reduction by such means indicates the propriety of attempting it by the division of the stricture external to the sac. It is only when the possibility of reduction by taxis would fail in convincing the surgeon of its propriety, that the sac should be laid open.

Even in the cases in which rare accidents, such as thickening of the neck of the sac, stricture formed by omentum, bridles of adhesion, &c. render the operation advocated in this memoir ineligible, it is by no means constantly necessary to open the hernial cavity to a great extent. The only cases

invariably demanding free incisions are those in which the intestine has actually lost its vitality; in all others the operation of *Monro* is frequently preferable. If any further argument is necessary to convince the practitioner, that the operation of *Petit* has been too seldom performed, let it be remembered that the sac may be opened at any moment, if the progress of the operation develops a necessity for this measure.

The next subject which engages the attention of *Mr. Key* is the diagnosis of gangrene of the intestine, and his remarks are interesting, although they contribute nothing to the limited knowledge of the subject already familiar to the profession. At present, incipient gangrene cannot be detected with absolute certainty, but this is no argument against the operation of *Petit* for the majority of cases. There are well-marked symptoms, both local and constitutional, which lead to strong suspicion of the existence of gangrene; their presence renders the operation improper, their absence in like manner proves its propriety. *Mr. Key* considers the fœtor produced by transudation of the contents of the intestine, sometimes perceived after the completion of the external incision, as a positive proof of confirmed gangrene. It is unquestionably a sufficient reason for freely opening the sac, but we doubt its being an infallible indication of the death of the viscus. Such transudations are common in the rectum, giving to anal fistulæ and abscesses a stercoraceous smell, even when they do not communicate with the canal, and there is no reason why they should not take place, under similar circumstances, in hernia. We even think that we have perceived this smell in a sac containing a living portion of intestine.

Having thus examined the general grounds on which he advocates the operation of *Petit*, *Mr. Key* proceeds to give the results of his own experience.

His two first cases were inguinal hernia. Want of practice in the operation, and the imperfections of the common director, foiled him—he opened the sac in the first case by accident, and in the second by necessity. Both patients died of peritoneal inflammation. His third trial was made on an umbilical hernia and succeeded. Then follows three cases of femoral hernia, one of them complicated with consequent erysipelas, all terminating happily. He gives no other cases of inguinal hernia, and but one of omphalocele, which last was entirely successful under very disadvantageous circumstances.

His remarks upon the steps of the different operations are interesting and important. In the femoral hernia he dissects down on the neck of the sac, carrying his incision upward so as to expose the surface of the tendon covering the abdominal canal, which he enters by a very small incision made through the tendon just above the external ring; through this he passes his director downward, so as to ascertain if stricture exists there, and if so he dilates it from within by his bistoury. He then reverts the director, examines if there is stricture at the neck of the sac, and if so, he extends his incision in the canal until he exposes the lower edges of the muscles, in order to enable him to reach the stricture with ease, repasses his director and proceeds to dilate it. In umbilical hernia he generally lays bare the linea alba and the neck of the sac, exposing the latter as little as possible, makes a very small orifice in the tendons a little above the stricture, passes the director downward to the constricting edge, and thus divides it.

The director employed by Mr. Key is broader and more flat than usual, with a well-rounded point to prevent injury to the peritoneum.

The work is illustrated by three plates displaying the parts interested, and the position of the director, in the operations for the three principal classes of hernia.

In quitting the subject we have only to add that the style is plain and clear, and the facts stated interesting even to those whose minds are settled on all the controverted points advanced in the memoir.

R. C.

XXI. *A Treatise on the Venereal Disease and its Varieties.* By WILLIAM WALLACE, M. R. I. A., &c. &c. &c., Surgeon to the Jervis street Infirmary, Dublin; and to the Infirmary established in that City for the Treatment of Cutaneous Diseases, including Venereal Diseases. London, 1833. oct. pp. 382.

In the preparation of this treatise, Dr. Wallace professes to have divested his mind of the shackles of authority, and to have investigated venereal affections *de novo*. He commenced this plan so long ago as 1819, when his opportunities of observation were extended by his election as surgeon to the Jervis street Infirmary in Dublin. He informs us that, during the earlier period of this investigation, a system of treatment least likely to interfere with the operations of nature, was as far as possible adopted, with the object of acquiring a knowledge of the natural history of the disease—the local applications being, in general, lint wet with water, and, when necessary to prevent evaporation, covered with oiled silk, or with a pledget of wax ointment. All constitutional remedies, except mild laxatives, were avoided, unless when the patient's safety required, from the supervention of alarming symptoms, more active measures; and these were then employed in conformity to the general principles of medicine and surgery, totally abstracting from consideration every idea of the disease possessing specific characters or requiring a specific course of treatment. After this practice had been pursued for a sufficient time to fulfil the objects in view, various other modes of treatment, suggested by previously acquired knowledge of the advantages and disadvantages of mercury, were tried. The results of these plans, as obtained by the author, are set forth in the treatise under notice.

Nothing shows more clearly the embarrassment existing in regard to the cause of venereal affections, than the extremely various opinions maintained upon the subject by pathologists. Thus, whilst some suppose that the variety of symptoms resulting from promiscuous intercourse, are so dissimilar as only to be accounted for by presuming the existence of a plurality of venereal poisons, each causing its own specific effects; many are of opinion that one specific virus is sufficient to induce to all the symptoms; others again maintain that there is no necessity for admitting the existence of even one distinct poison, the effects produced by common irritants or morbid secretions giving rise to the various symptoms, according to modifying influences of structure, and other natural or accidental circumstances.

Dr. Wallace disbelieves in the existence of distinct venereal poisons, but holds in the existence of one specific virus, which he maintains gives rise to results palpably different from those of ordinary morbid secretions or common ir-

ritants. In the maintenance of this doctrine, we think our author behind the times, and believe that his reasoning upon the subject will be found any thing but conclusive, except perhaps to the minds of those who are so biassed by long belief or prejudice, as to be incapable of estimating fairly any facts or arguments but those favouring their own opinions. We must do Dr. Wallace the justice, however, to say that he has treated this much-contested part of his subject with a great deal of moderation, if not candour; and with such qualifications we are rather surprised that he has not been led to different conclusions. His admissions, however, if turned against him, are, we think, quite sufficient to subvert his own position. For example—

“It must,” says he, “be admitted, that when the surfaces of the genital organs are irritated by mechanical causes, or by secretions which do not contain any specific virus, certain morbid discharges or ulcerations sometimes ensue, which cannot be distinguished, without great difficulty, from the supposed effects of the venereal virus; and perhaps on some occasions there does not exist any character cognizable by us, from which to arrive at a clear diagnosis between the effects of the venereal poison and the effects of common irritation. The question then arises, are the effects which result from the influence of common causes of irritation essentially the same as those produced by secretions, in which we presume the syphilitic virus to exist?”

We answer yes, and view his arguments to prove that there exist certain diagnostic signs by which an accurate observer will be enabled to discover marks of distinction between the primary or secondary symptoms produced by common irritants or acrid discharges from the diseased or irritated surfaces of the genital organs, as altogether inconclusive. The acuteness of Hunter failed in establishing a criterion between what have been styled the true and the spurious forms of syphilis; and from this author to Dr. Wallace, none has been established that will bear the test of experience. The reason is that there is no essential difference between the effects produced by a morbid secretion from the irritated, inflamed, or ulcerated venereal organs, and those of common irritants. Truly do we believe our author when he asserts, after a fruitless investigation into the diagnosis of primary syphilis—

“It thus appears, that neither the mode of origin, nor the form, nor the colour, nor the size, nor the number of the ulcers of primary syphilis are pathognomonic.”

Our views upon this point have, however, been already expressed at some length in former volumes of this work, to which we beg leave to refer such as feel any curiosity or interest in the subject.*

The very rational views which Dr. Wallace furnishes in relation to the treatment adapted to the first stages of syphilis, furnish, we think, additional evidences of the identity of the symptoms arising from the various sources of irritation and inflammation.

“It may,” says he, “be laid down as a general rule, that the prevention of inflammation and its consequences of morbid sensibility, and of indolent action, is to be anxiously kept in view during every stage of primary syphilis; for if any of these morbid states be produced, the case is thereby complicated, and the difficulty of treatment greatly increased.”

* See the 1st and 2d Vols. of this Journal for 1827, Review of Richond on the Non-existence of the Venereal Virus.

“It is well known, that a certain degree of over-excitement, whether local or constitutional, will cause in one person violent inflammation, its concomitants and consequences; and that the same degree of excitement in a different person may produce morbid sensibility or irritability; while, under other circumstances, or in other habits, indolent action and induration, &c. &c. may ensue.”

“If, therefore, undue excitement, either local or constitutional, may cause those morbid actions which retard or oppose the cure of primary syphilis, and complicate the indications of treatment, it follows, that, during every stage of the disease, great attention should be directed to guard against its occurrence. Indeed, if this all-important principle were carefully acted upon, the disease would, in a vast number of cases, speedily cicatrize without the interference of art. In fact, the closest attention to the great principle of preventing undue or inappropriate excitement, should not cease from the commencement of the treatment, until the disease has been brought to a conclusion. Whatever may be the remedies which he is using, the practitioner should be always on the watch—ever fearing the possible occurrence of unfavourable actions; and the moment he remarks those minute changes, which point out or foretell the approach of any deviation from the natural characters or progress of the disease, he should pause, and reflect on their cause. In short, he should then modify his treatment, or change it altogether. For it is inaccurately observing the very commencement of these changes, and in immediately altering the treatment accordingly, that the skill of the practitioner will be particularly exhibited; and it is the want of this observation, and a blind perseverance in a plan of treatment no longer suited to the individual case, which has led to so many revolutions in practice, and has frequently caused the most dreadful consequences to result from primary syphilis, which had commenced with the mildest characters.”

“Gentleness in handling, unirritating applications, cleanliness, rest and position, the judicious regulation of regimen, and protection from vicissitudes or intemperance of atmosphere, are the measures for preventing, in constitutions otherwise healthy, this undue excitement.” p. 89-90.

But we differ from Dr. Wallace entirely in regard to the advantage of the practice of *snipping off* the diseased structure, &c. as recommended in the following passage.

“As we seldom have an opportunity of observing primary syphilis before the stage of ulceration, we need scarcely consider the treatment which should be adopted earlier than this period. If, however, a case presents itself during the first stage, and while the part is only in a state of circumscribed phlogosis, the diseased structure may without hesitation be snipped off, the wound allowed to heal, and for security against secondary symptoms, the patient should be treated constitutionally, as if he had not applied until the disease was more advanced.”

This practice we think decidedly at variance with his very just position, that the sooner the primary ulcer is healed the sooner the risk of several serious consequences both local and constitutional will be removed.

In his general treatment our author professes himself a limited mercurialist. His views with regard to this once considered indispensable mineral agent, may be gathered from the following passage.

“Perhaps there does not exist in the *materia medica* any agent entitled to the denomination of a specific, in the sense in which mercury was formerly considered a specific for the venereal disease; for there is no remedy which is capable under every circumstance of curing any given disease. Sulphur will not necessarily remove scabies; nor will bark necessarily remove ague. There often exist controlling circumstances to prevent the sanative influence of both the former and the latter. But do we on this account deny their specific influence

in these diseases? or, in other words, do we deny that the actions produced by the influence of these remedies have a remarkable efficacy in subduing or removing the morbid states just mentioned? Certainly not. We still consider them as specifics; or, in other words, as powerful means of controlling or removing certain diseases; and we endeavour by patient inquiry and by accurate observation, to discover the circumstances under which they do not exercise their beneficial influence. Precisely similar views should regulate our conduct in the employment of mercury for the treatment of venereal diseases. Its beneficial operation on many occasions cannot be doubted, its injurious influence on others is equally certain; and it is our duty to administer it in the former, and to refrain from it in the latter. We must learn when to use it, and when to refrain from its use. In this consists, if not the whole, at least the principal difficulty in the treatment of the venereal disease; and it is this knowledge which distinguishes the pathologist from the empiric." p. 104.

And again—

“On the whole, while I admit the important results which have sprung from modern inquiries respecting the venereal disease, and the action of mercury, and feel sincerely grateful for the addition thereby made to our knowledge, and particularly as to the determination of the question of the general curability of venereal diseases without mercury, I must express my conviction, that much mischief has arisen from the general cry raised against this medicine, and from the vacillating and unsteady practice to which this injudicious clamour has led. These modern prejudices are now however ceasing, not gradually but rapidly; and I have no doubt that ere long a middle course of practice will be universally adopted; and that the evils of the old mercurial, and of the more modern anti-mercurial practice will be equally avoided, and a rational system of treating the venereal disease adopted in their place—founded upon a knowledge of the facts, that mercury, if properly administered, is in a great number of cases highly efficacious in controlling the venereal disease, or that form of morbid action which is produced by the influence of the venereal poison; that this disease may however be in general cured, if necessary, without mercury; and that on some rare occasions, this remedy, in place of curing syphilis, will aggravate all its symptoms. In short, with these facts, which have been satisfactorily ascertained by modern researches, and which are now placed before our eyes, we shall no longer be in danger of employing mercury, when more mischief than good may result from its employment; nor of persevering in its use, when it can no longer serve any good purpose, but may produce the most injurious consequences. We have however much still to learn; and it is the duty of every practitioner, who possesses opportunities, to take advantage of them, and endeavour to arrive at fixed rules of conduct in respect to many points as yet unsettled.”

The great lesson to learn may, we think, be comprised in very few words; namely, to treat syphilitic affections upon the same general principles applicable to other diseases, without any reference to a specific cause, but with proper regard to the modifying influence of structure and other peculiarities connected with the organization. And with respect to the application of mercurials either externally or internally, let this be done without any view as to their specific powers to controul one disease, but merely as agents useful in most chronic disorders when judiciously applied.

We have not sufficient space left us to speak of all the local means resorted to by Dr. Wallace for the treatment of primary syphilis. No new application is however recommended by him, as he has very sensibly concluded that more depends upon the judicious employment of ordinary remedies, than upon trials of new ones. In dispensary practice, and among the lower ranks of society,

Dr. Wallace very properly observes that the internal use of mercury, particularly at inclement seasons of the year, can seldom be safely recommended.

“In such persons,” says he, “and under such circumstances, topical applications are of infinite value. In cases of this kind, I generally confine my treatment to them, in conjunction with the internal use of nitrous acid; and by these means, I succeed for the most part in healing the disease with rapidity. Cases treated in this way are also very seldom followed by secondary symptoms.”

We not only accede to the practical views of Dr. Wallace, given in the following extract, but believe that the beneficial effects of the general treatment are frequently if not always attributable to such treatment, rather than the subsequent mercurial course to which they are so often ascribed.

“It is, in fact,” says he, “an occurrence of every day to observe cases of primary syphilis, the inflammation or other adventitious morbid actions of which could have been easily subdued by a purge, a poultice, and a day or two of rest and abstinence, and thus prepared for a simple course of treatment, so irritated by inappropriate applications, that the inflammation, &c. soon becomes greatly increased, and consequences ensue, which lead to other consequences, the termination of which we cannot foresee.”

“It is, therefore, scarcely necessary to observe, that, whenever a patient applies for our advice, if the disease, although regular in all its other characters, be accompanied by a greater degree of inflammation or irritation than is inseparable from it in its simplest form, we must pause for a day, and by appropriate measures bring the part and system into a state of tranquility. By a delay for this purpose, we shall not lose, but on the contrary gain time. Indeed, in the majority of cases of even the most simple and regular forms of primary syphilis, I employ the first day in purging my patient actively; and if he be of a plethoric habit or sanguineous temperament, I direct that from twelve to eighteen ounces of blood shall be taken from his arm. No inconvenience can result from this practice; and on very many occasions, it will not only prevent future mischief, but also contribute greatly to the more satisfactory action of all the remedies afterwards employed. There can, in fact, be no doubt that the abstraction of blood in healthy constitutions eminently promotes the salutary influence of mercury, and also keeps in subjection that inflammation or phlogosis which is necessarily attendant on the actions of reparation, but which, if allowed to exceed an appropriate degree, not only retards these actions, but may lead to their total suppression.”

The rule we would lay down for the use of mercurial remedies is, never to employ them so long as antiphlogistic means are called for; as their operation must always be injurious unless when resorted to in the chronic stages after the subsidence of all general inflammatory action.

Dr. Wallace has given a strong evidence of the minuteness with which he has carried his observations into this disease, in his classification of what he terms phagedenic primary syphilis. The order he at first adopts is as follows:—

1.	2.	3.
<i>Without slough.</i>	<i>With white slough.</i>	<i>With black slough.</i>
A. Simple.	A. Simple.	A. Simple.
B. Inflamed.	B. Inflamed.	B. Inflamed.
C. Irritable.	C. Irritable.	C. Irritable.

Each of these orders is again distributed into varieties and sub-varieties, &

minuteness of division, the advantages of which are, to say the least, equivocal. Indeed, the author's own words bear us out in this position.

“In conclusion,” says he, “the attentive reader will have observed, during his perusal of the preceding account of the symptoms and treatment of phagedenic primary syphilis, that there exists a striking analogy between the corresponding varieties of all the species. Thus, all the simple varieties resemble one another, all the inflamed varieties are in some respects strikingly similar, and there exists a remarkable analogy among all the irritable varieties. Hence we might adopt the characters according to which the varieties are distinguished from each other, or the state of inflammation and irritability, &c. as the basis for distinguishing the species.”

Dr. Wallace's chapter upon the phagedenic form of syphilis is exceedingly rich in practical information. Indeed, we may say the same of most or all of the other chapters of his book, which, however, notwithstanding the restrictions introduced in regard to the use of mercury, are, we think, still too highly charged with that mineral.

We approve highly of Dr. W.'s adoption of the term *catarrhal primary syphilis*, as a substitute to the ordinary terms gonorrhœa, blenorrhœa, &c. as it expresses that semblance between the discharge from the mucous tissue of the urethra and that of other passages, which we believe to subsist, denoting at the same time the primary characteristics of the disease. But it is impossible for us on the present occasion to mark all that we approve, or note what we would feel disposed to condemn. Among the latter, however, we cannot pass over the practice of administering mercury in the catarrhal forms of syphilis, although exhibited in what our author terms “small doses.” The small doses mentioned as sufficient “to protect the constitution from contamination,” consist of about five grains of the blue pill with one-fourth of a grain of opium, *twice* a day, morning and night, seldom continued longer than two or three weeks. We totally disagree with him in all the reasoning he has brought to sustain his point of the necessity of mercury, and especially in his fifth and last, which runs in the following words: viz.—

“If mercury does not serve any useful purpose in the treatment of catarrhal syphilis, it can do no harm if properly administered, nor will it interfere with the administration of any other remedies.”

We venture to assert that other parts of his ordinary practice in catarrhal syphilis, will also be regarded as exceptionable by the most judicious practitioners. We refer to his use of stimulants and tonics, as we think, in too liberal doses, or at too early a stage. So far as our observation extends, the most mischievous consequences attend a practice of this kind, notwithstanding the striking success which sometimes follow it.

The volume which we have thus cursorily noticed is the first part of a work, the succeeding portion or portions of which are to follow as quickly as possible. It is, however, complete in itself and independent of those which are to follow. In addition to the letter-press, the author promises a series of delineations illustrative of his views, to be “executed in such a manner as truly to represent nature.” The ample extracts we have made, will, we think, convince the reader that Dr. Wallace's treatise contains much valuable information.

XXII. *On Some Points connected with the Anatomy and Surgery of Inguinal and Femoral Herniæ, &c.* By G. J. GUTHRIE, F. R. S. &c. Quarto, p. 44. Illustrated by three plates.

Mr. Guthrie is among the most distinguished surgeons of the British capital, and is well known on this side of the Atlantic through his various works. The principal object of the author, in the present publication, seems to be to establish the point, that the internal abdominal ring is a muscular orifice, being surrounded entirely by the transversalis muscle, that is to say, having fasciculi of this muscle bounding both its superior and inferior margin. Mr. Guthrie, however, does not state this to be universally the fact, but only an occasional occurrence, which will account for some of the phenomena of hernia, and also for the diversity of treatment recommended by surgeons. Judging from our own observations, after frequent and attentive dissections of the part on subjects where the muscular system was well developed, we are disposed to believe that the fact alluded to by Mr. Guthrie is very far from a normal condition, but is one of those deviations of the muscular system so well known to the practical anatomist. Mr. Guthrie observes that the transversalis does not, in the generality of instances, send its inferior margin below the spermatic cord in so marked a manner as he found in his dissection at Surgeon's Hall, but he is of opinion, that the corresponding part of the muscle is mostly tendinous, and adheres all along to Poupart's ligament. We beg leave to differ from him in this respect, such an arrangement would be extremely unusual. The transversalis is, on the contrary, much disposed to stop from one to three inches above the internal abdominal ring, and especially where the inferior section of the internal oblique is very thick. As Mr. Guthrie's observations seem to have been limited to a single subject, where the internal abdominal ring was muscular, or rather formed in the transversalis muscle, the comparative frequency of this arrangement is a very fair subject of inquiry, it may possibly occur oftener than is supposed. Moreover, the disposition of fibrous tissue under circumstances of extension, as in the uterus and round ligaments thereof, to evolve muscular tissue may be exhibited in the fascia transversalis in many cases of inguinal hernia; this inquiry, fully sustained by dissections of persons dead with inguinal hernia, would contribute much to elucidate the point at issue between Mr. Guthrie and other anatomists, and would be a subject worthy of his known zeal and talents.

Mr. G. gives, or rather acquiesces in, a number of excellent practical rules for the treatment of strangulated hernia, and seems to be a decided advocate for early operations, where ordinary means fail. He says that he is quite satisfied, that it is better to operate half an hour too soon, than ten minutes after the time of absolute necessity.

We were struck with the fact, that in this paper which is highly creditable to Mr. G.'s spirit of research, both into authority and nature, he should have overlooked, in the midst of quotations from continental and English writers, our friend, Abraham Colles, Esq. of Dublin, who, in his very unpretending little volume of surgical anatomy, has defined the arrangement of the fasciæ and muscles about the pelvis with an accuracy, precision, and succinctness, seldom equalled. Sir Astley Cooper and Mr. Colles together, have done great honour

to British anatomy and surgery on this head, so as to leave but very little more to be desired; additional descriptions, elaborated upon their text, have heretofore, we must say, contributed feebly to the understanding of the subject, and in the case of one not familiar with it are for the most part unintelligible.

Mr. Guthrie has furnished a new idea on the use of the gubernaculum testis, to wit, that of keeping a passage open for the descent of the testicle, which passage would otherwise be closed. He rejects the notion of the gubernaculum drawing the testicle into the scrotum. He says—

“I believe that the testicle descends or ascends, as the case may be, at the proper period, for the same reason that a child is usually born at nine months in preference to any other period of utero-gestation, which is, as Avicenna says, by the will of God.”

In rendering profound homage to a supreme and final cause, we shall not disagree with him on the influence of the latter, to which all actions of the system must be referred, but we doubt the accuracy of the statement as representing the *quo modo*. The observations of the late John Hunter, on the descent of the testicle, have elucidated and explained this point very satisfactorily, and in regard to the expulsion of the foetus, we think the *quo modo* can also be got at there by remembering that the decidua in the larger animals is a membrane furnished with large blood-vessels, which are closed and become fibrous cords preparatory to the final term of gestation, and that this closure renders the decidua a sort of effete membrane, the expulsion of which is rendered necessary for the same reason, that the deciduous teeth are thrown off from an infant's mouth when their blood-vessels are obliterated. We may also remark that the will of our Creator is so omnipotent an agency, that it stands as little in need of the gubernaculum testis to keep a passage open for the testis, as it does to draw the testicle into the scrotum, so that our author's theory is fallible even in that respect.

We must not omit to notice the beauty and fidelity of the plates in this memoir, and the neatness of its typographical execution.

Mr. Guthrie's work is, upon the whole, well worthy of perusal, and highly creditable to him; and by the foregoing remarks, we merely intend to signalise the difference between his views and those entertained on this side of the Atlantic.

W. E. H.

XXIII. *Manual of Practical Toxicology; condensed from Dr. Christison's Treatise on Poisons. With Notes and Additions.* By J. T. DUCATEL, M. D., Professor of Chemistry and Pharmacy in the University of Maryland, &c. &c. Baltimore, 1833, pp. 341, 12mo.

Although we would have much preferred that Dr. Ducatel should have given an American edition of Dr. Christison's unrivalled work in an entire form, with the notes and additions he has subjoined to the present condensation of it, we feel that in the state of apathy which exists among the medical profession with regard to medical jurisprudence, he has adopted the wiser plan, but we sincerely hope that a time may soon arrive when the importance of this branch of science will be fully appreciated, and that the talents and acquaintance with the subject which Dr. Ducatel has displayed in this little volume may have a wider field of action.

The present manual is, in a great measure, an abridgment of Dr. Christison's great work on the poisons, altered, however, so as to render it of a more elementary character, and at the same time to present a cheap and portable volume, which should contain the most important facts relating to poisonous agents and their influence on man. To accomplish this, Dr. Ducatel has omitted all those portions of the original work which related to the chemical history and the tests for the various poisons, and in short all those parts which are not of direct avail to the practitioner when called to attend a person labouring under the effects of a poison.

Some judicious changes have been made in the classification, or rather in the arrangement of the work; thus the matter is distributed into chapters, sections, sub-sections, and paragraphs, which latter are numbered, to facilitate a ready reference to any particular subject. Dr. Ducatel has also given some very valuable notes and additions; these include references to the chief pharmaceutical and artificial preparations containing ingredients ranked among the poisons; fuller accounts of the mode of treatment for several poisons, principally as regards the chemical treatment by antidotes; descriptions of the botanical characters of the poisonous families of plants, and some additional facts concerning the singularly corrosive effects of chromic acid, and the poisonous properties of its salts.

As may be judged from what has already been said, we are much pleased with the work, and can confidently recommend it in the highest terms to the student or practitioner who wishes for general information on the poisons and their effects, as well as the means of remedying these effects. But this is all, for as all notice of the means of detecting the presence of poisonous articles and of identifying them is omitted, whoever appeals to it as a guide through the numerous difficulties which environ this part of medical jurisprudence will be wofully disappointed. This very circumstance, however, will, we trust, induce such a demand for the original work, as to induce its republication.

It is not our intention to enter into an examination of the contents of Dr. Ducatel's manual in detail; we, however, noted two or three points in which we think he has been led into error. Thus, in a note to page 247, he says, "Anthracite coal yields while burning, nothing but carbonic oxide and carbonic acid." Any one that has paid attention to the subject, must know that all varieties of this coal give off carbureted hydrogen, and also that the flame indicates by its colours that there is an admixture of foreign substances, as sulphur, copper, &c. in solution in the gas or in the form of vapour.

Page 227. "Dr. Macleod thrice had occasion to remark this, (salivation,) in patients, who had been using the acid for about a fortnight, and twice in one individual, and Dr. Granville says he had also twice witnessed the same effect. Nevertheless, it is suspected that salivation in these cases had been brought about by the use of an impure acid, containing probably a small quantity of the deutochloride of mercury, particularly if the acid had been prepared according to the process of the Dublin College. In fact, we are informed by our colleague, Dr. E. Geddings, that in other cases, where salivation has likewise been produced apparently by the use of hydrocyanic acid, mercury was actually discovered in the acid by Sylvester's test."

Even granting that mercury be present, which, by the way, would show great negligence in the manufacturer, the quantity would be but small, and when it

is recollected that the acid is given only in doses of a few drops, we can scarcely credit that the mercury would have any effect, without admitting, with the disciples of Hahnemann, that the powers of remedies increase in proportion to their dilution.

Again, in note to page 254, "down to some of the solanum genus, the leaves of which are used as kitchen herbs." Which of the solanums furnishes edible leaves? We are unacquainted with such a species, though we do not deny the fact.

We also notice some typographical errors, not, however, of sufficient importance to require our pointing them out. R. E. G.

XXIV. *Baltimore Medical and Surgical Journal and Review.* Edited by E. GEDDINGS, M. D. Professor of Anatomy and Physiology in the University of Maryland, &c. No. 1. October, 1833.

Were it not that it might seem ungracious, in noticing the first appearance of a fellow labourer in the fields of medical science, we should be strongly disposed to question the wants of the profession in this country, requiring that there should be brought "forward a new periodical while so many already exist devoted to the interests of medical science;" and attempt to demonstrate, that what is really demanded is not an increase in the channels of information or of the institutions for instruction, but the improvement of those existing—not multiplication but concentration—consolidation. These, we are sensible, are far from being the sentiments on this subject most generally entertained, and as it has been thought expedient by the professors of a college in a neighbouring city, to bring forward a new periodical, we sincerely congratulate the profession that the conducting of it has been entrusted to such able hands as those of our esteemed friend and former collaborator, Professor Geddings. Dr. G. is well known to our readers by his valuable contributions to this Journal, and the first number of his own Journal exhibits evidence that he retains all the zeal, industry, and abilities for which he has hitherto been so conspicuous. The plan of the Baltimore Journal is precisely similar to our own, which we take to be as an acknowledgment of its being the best and therefore to be an especial compliment.

The number before us, (No. 1,) contains six original articles, one by the editor, a very erudite essay on Follicular Gastro-enteritis. The other articles are on Fractures of the Thigh and Leg, by Professor Smith; on Several Cases of Doubtful Suicide or Homicide recorded in History, by Professor T. R. Beck; on Poisoning with the Preparations of Chrome, by Professor Ducatel; on Cholera Infantum, by Professor Potter; a Case of Aneurism of the Right Subclavian Artery, in which a Ligature was Applied to the Arteria Innominata, by Professor Hall. There are, besides, several original communications of American intelligence. Our limits will not permit us to notice these articles more particularly here, but we shall hereafter present a condensed summary of those which will admit of it in another department of the Journal.

XXV. *Recueil de Mémoires sur le Typhus Nautique, ou Fièvre Jaune, Provenant principalement de l'infection des Batimens Négriers.* Par M. AUDOUARD, D. M. M. Envoyé à Barcelone en 1821, et au Port du Passage en 1823, par S. E. le Ministre de la Guerre, à l'occasion de la Fièvre Jaune.

This Collection consists of six memoirs, the first is entitled "Relation Historique de la Fièvre Jaune qui a régné au Port-du-Passage en 1823;" the second, "Considérations sur l'Origine et les Causes de la Fièvre Jaune, d'après l'observation de cette Maladie a Barcelone en 1821, et au Port-du-Passage en 1823;" the third, "Considérations Hygiéniques sur le Typhus Nautique ou Fièvre Jaune, provenant principalement de l'infection des Batimens Négriers;" the fourth, "Aperçus Généraux sur l'Infection et la Contagion dans la Peste et la Fièvre Jaune;" the fifth, "Examen Critique des opinions qui ont Régné sur l'Origine et les Causes de la Fièvre Jaune;" and the sixth, "Discours sur la Fièvre Jaune, a l'occasion des Documents de M. le Dr. Chervin sur cette Maladie, et du Rapport auquel ils ont donné lieu a l'Académie Royale de Médecine de Paris, le 15 Mai, 1827." The principal object of the author in these memoirs, is to prove that yellow fever is produced by an infection which is peculiar to slave ships, and that the disease is contagious. While we are far from yielding our assent to the truth of these propositions, it is but justice to Dr. Audouard, who we are informed is a highly respectable physician, to state that he has shown great zeal and industry in the investigation of the subject, and has collected several interesting facts, some of which appear to afford a degree of countenance to his views.

In the introduction to these memoirs, Dr. A. states that "yellow fever consists in a morbid modification of the mucous membranes, from which hæmorrhage results," and "that the bile played no part in this disease." This view of the pathology of yellow fever was first published by him in 1822, in his historical and medical account of the yellow fever which prevailed at Barcelona in 1821. We cannot refrain from expressing our surprise that Dr. A. should assert that no one previously to himself had expressed such views--views which, as is well known, were maintained and published in this country upwards of a quarter of a century previously, by Physick, Cathrall, Miller, &c.

The subject of yellow fever has lost so much of its interest, that it would not be expedient to enter particularly into the consideration of Dr. A.'s work. It is worthy the attention of those, however, who have any curiosity relative to the disease.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *Absence of the Right Auricle.*—A very interesting case of this is related in *Hufeland's Journal*, for July, 1831.—The subject of it was a woman who had been affected with violent palpitations and dyspnœa. On post mortem examination, the heart was found soft and without any right auricle. In the place of this latter, there was a venous canal, an inch long and an inch and a half in diameter, which extended from the heart to the union of the two venæ cavæ; the sole trace of a venous sinus was a small portion of the septum, but there was a larger vestige of the auricular appendix, its size was equal to that of a large pea. Where the venous canal united to the heart a circular furrow marked the situation of the tricuspid valve; the opening was however so large that the canal of the superior portion of the right ventricle formed but a single and the same cavity; the inferior portion of this ventricle was separated from the superior by transverse fleshy columns which divided this ventricle into two cavities; the pulmonary artery was very large; the left side of the heart was small, but its structure was normal. There were tubercles in the lungs.—*Archiv. Gén. May, 1833.*

2. *On the Alleged Existence of a Ganglion Oticum in Man and Quadrupeds.* By Professor SCHLEMM, of Berlin.—Dr. Arnold, prosecutor of the University of Heidelburgh, in an essay published in 1828, has given an account of a newly discovered ganglion connected with the third branch of the fifth pair of nerves. This ganglion, which he discovered whilst investigating the anatomy of the cephalic portion of the great sympathetic, is described as lying on the inner side of the third branch of the fifth pair immediately below the *foramen ovale* of the sphenoid bone, and from its supposed intimate connexion with the organ of hearing, has been named by him *Ganglion oticum s. auriculare*.

The alleged discovery of Dr. Arnold seems in an especial manner to demand further investigation, as it is calculated to raise distrust in the authority of the most diligent and successful inquirers into this branch of anatomy, such as the first Meckel, Palletta, Bock, C. Bell, &c. and in this there would indeed be no injustice if these anatomists had really passed over unobserved such a distinct and striking object as the ganglion described by Dr. Arnold.

Such considerations as these, and also a complaint expressed by Dr. Arnold of a want of due attention on the part of anatomists to his discovery, led Professor Schlemm to investigate the subject with all possible care. The following are the general results of his observations:—

“1. In man, the so-named *Ganglion oticum* does not exist.

“2. That body is present in ruminants and some other animals, but it is not united to the third branch of the fifth pair by nervous matter, being connected

with it merely by cellular substance; and in my opinion, the body in question is not a nervous ganglion, but a lymphatic gland.

"3. Except the filament termed by Arnold *Nervus petrosus superficialis minor*, already alluded to by me, in the calf, which Dr. A. describes as arising from the *Ganglion oticum*, all the nervous branches in question, viz. the *Nervus pterygoideus internus*, *Nervus ad tensorum tympani*; and *Nervus ad tensorum palati*, arise from the third branch of the *Nervus trigeminus*;—the *Nervus pterygoideus* coming off immediately from that branch, whilst the last two are in every case branches of the *Nervus pterygoideus*."—*Ed. Med. and Surg. Journ. April, 1833.*

PHYSIOLOGY.

3. *Discovery of a New Principle in the Serum of the Human Blood.*—M. FELIX BOUDET, in a memoir presented to the Institute, has investigated anew the composition of the serum of the human blood. His researches prove, that when evaporated to dryness, exhausted by boiling water, and dried anew, it yields to boiling alcohol the following substances; 1st, a peculiar immediate principle, called by the author *seroline*; 2d, *cholesterine*; 3d, a *soap*, soluble in water, most probably formed by the margalate and oleate of soda; and 4th, the *fatty matter of the brain*.

Seroline is deposited, on cooling, from the boiling alcohol by which the serum has been exhausted. The liquor filtered, when cold and evaporated, leaves a residue of a resinous consistence (*de consistance terebinthineuse*.) On treating this with cold alcohol, at 36° (*specific gravity* 0.8252,) the fatty matter of the brain is separated, and a substance is dissolved, which is considered by M. Lecanu to be an oil, but proved by M. Boudet to be composed of several distinct principles. In fact, the liquor left to itself, deposits crystals of *cholesterine*, and retains the soap mentioned above, together with a little of the fatty substance of the brain.

Seroline is white, of a slight pearly-colour, in the form of filaments, which, viewed by the microscope, present the appearance of globules, or globular swellings. It melts into a colourless oil at the temperature of + 36° (97.8. *Fahr.*) It has no action on coloured reagents, but like *cholesterine*, becomes red on the contact of concentrated sulphuric acid. Sulphuric ether dissolves it easily; alcohol on the contrary, at 36° (*sp. gr.* 0.8252,) dissolves only a trace of it at the temperature of ebullition, but has no effect on it when employed cold. Treated hot for six hours with *aqua potassæ*, it seemed not to experience any modification, and hydrochloric acid produced not the least disturbance in the alkaline liquor. Neither acetic nor hydrochloric acid produced any apparent alteration on it, whether hot or cold. When heated a long time with nitric acid, it was not dissolved, but became soluble in *aqua potassæ*, to which it communicated a brown colour. Distilled by the lamp in a small glass tube, it diffused a very characteristic odour, furnished some alkaline vapours, a trifling residue resembling charcoal, and appeared to be in part volatilized. The small quantity of *seroline* obtained, did not permit M. Boudet to submit this substance to a greater number of tests, but he conceives that enough has been done to prove it to be a new principle.—*Ed. Med. and Surg. Journ. from Journ. de Pharmacie, June, 1833.*

4. *On the Umbilical Vesicle.*—It has been ascertained by the investigations of Professor MAYER—1st. That in the normal state, the umbilical vesicle of the human embryo remains visible from the commencement to the termination of the entire development of this last. In the placenta of two twins, at the full term of utero-gestation, two vesicles may be distinctly perceived. 2d. That the conduit of the umbilical vesicle does not become permeable until three or four weeks after the descent of the ovum into the uterus. 3d. That the vesicle does not contain any yellowish, pulverulent substance; that its conduit, though per-

fectly whole and permeable, is so small, that it can but in a very small degree serve for the nutrition of the embryo, although the latter is exceedingly minute in the first four weeks of its development. Further, it should be remarked that the umbilical vesicle is large in the carnivora, whilst it is very small, can contain only a few drops of fluid in the herbivora; in the human species it is very small. 4th. That numerous observations lead to the conclusion, that the circulation of the blood continues for a long time in the omphalo-mesenteric vessels, whilst the permeability of the conduit of the umbilical vesicle continues only until the third month of gestation. In a monstrous foetus, at full term, the omphalo-mesenteric vessels were very distinct in their whole course.—*Archives Gén. Feb. 1833, from Allgemeine Med. Zeit. No. 73, 1832.*

PATHOLOGY.

5. *On the Different Sorts of Goitre.*—Dr. SACCHI, the chief surgeon of the hospital at Treviglio, has written a very able memoir on this subject, in the December number of the *Annali Universali*, from which we shall make a few extracts.

The first form, or species, is that wherein the gland is simply enlarged in volume, but not changed in structure; it has been called by some the fleshy goitre; Dr. S. prefers the term of hypertrophy of the thyroid gland. It is common in young girls and in women—has a regular, even surface, an uniform resistance, and seldom presents any distinct divisions, or lobes.

It may be often cured by medical treatment. If not dispersed, the gland becomes in time variously altered;—these alterations may be reduced to two leading forms; in the one, the goitre assumes a scrofulous character; in the other, an encysted, or, as it has been called, a lymphatic character. The scrofulous goitre attains often an immense size, but does not give rise to corresponding inconvenience or danger—it is generally lobulated. Now, in course of time, one or more of these lobes may become soft, and give to the finger the feeling of fluctuation; this constitutes the soft, hydatidic, serous, or lymphatic goitre of authors; the structure has become vesicular, and the contained fluid is sometimes watery—at other times mucous or albuminous, like the white of an egg. In a few cases, it is more like milk or pus, or different cells may contain different sorts of fluid. It must, however, be well remembered that some goitres, which have a most distinct fluctuation, yet contain no fluid; the structure of the gland has degenerated into a mass like that of the placenta, or of a wet sponge.

This variety of goitre is remarkably smooth, uniform, and elastic to the touch. Some goitres undergo a partial ramollissement; for it is quite a mistake to suppose that they always become harder and harder, the longer they exist. From what has been stated, it may justly be concluded that hypertrophy, scrofulous change, and lymphatic degeneration, should be considered as three progressive stages of the same disease; and it is not unfrequent to find different parts of the gland simultaneously affected with these three diseased conditions.

It has been a subject of dispute, whether the thyroid gland is ever primarily affected with true scirrhus. Scarpa said *not*; and maintained that the disease was always consecutive to cancer or scirrhus of the tongue, œsophagus, parotid, or submaxillary gland, &c.

Dr. Sacchi has, however, narrated a case in confirmation of the opposite opinion: and the dissection of the tumour must preclude any attempt to gainsay its nature. An example of genuine fungus hæmatodes is also detailed.

One of the most curious alterations of the thyroid gland is that which has been called the aneurismatic goitre; it is formed by an abnormal or excessive development of the thyroid arteries, and of their branches; the former sometimes acquire the size of one of the carotids. On examining the tumour during

life, it is found to have strong pulsations at every point; but the pulsations do not resemble those of an aneurism—they convey to the hand rather a sensation of the blood flowing along very rapidly into numerous vessels, and are accompanied with a sound like an obscure buzzing, or tremulous murmur of the whole surface; but this is more distinct and strong over the site of the thyroid trunks. In two cases, given by our author, the tumours had existed for a number of years, and both had been originally brought on by the efforts of the women during their accouchements.

In addition to the preceding forms of goitre, we may state, that the thyroid is occasionally the seat of tuberculous and melanotic depositions, and of hydatidic, atheromatous, cartilaginous, bony, and even of chalky formations. Now all these, as well as the preceding tumours, are included in the general appellation of goitre. Dr. S. adheres to the old opinion that this disease is very frequently, perhaps most commonly, induced by the prolonged use of unwholesome calcareous waters. In proof of this, he alludes to the sanative results of changing the residence of the patients. This, he says, is by far the most important of all remedial means. Iodine is useful chiefly in the hypertrophic and scrofulous forms; less so in the lymphatic; and is quite inefficacious against the small, isolated, and hard goitres. The best mode of using it is by friction, with an ointment of hydriodate of potass, to be continued for one, or for several months.—*Med. Chirurg. Rev. October, 1833, and Annali Universali.*

6. *Case of Encysted Abscess of the Cerebellum communicating outwardly.*—The following very curious case, related by Dr. SCALVANTI, of Pisa, is an interesting contribution to the pathology of the brain.

A soldier, aged twenty-three, of a plethoric and healthy constitution, was admitted into the Royal Hospital of Santa Chiara, with the following symptoms, which had suddenly come on; active pyrexia, severe head-ache, stupor, hard, vibrating pulse, &c. The left parotid was swollen and inflamed. Active depletions speedily restored him; and all that he now complained of was a pain deep-seated in the left ear, accompanied with tinnitus. Blisters and other topical means were tried, but to no purpose; he therefore left the hospital, but soon returned; and now, in addition to the otalgia, there was a swelling of the meatus externus, and he was tormented with head-ache. By cupping, antimonial ointment, &c. he was relieved, and enjoyed a respite for several days; but it was only a respite, for again came back all his distresses worse than ever; the head-ache was accompanied with violent pulsations and a feeling of burning heat; the patient was feverish and watchful, and the integuments over the squamous bone were puffy and inflamed; leeches were applied to the inside of the nostril, with considerable benefit; still there was the beating pain in the head, which at stated periods became much exacerbated. For about six days he was tolerably easy, but this deceitful calm was soon followed by another attack of suffering; the swelling of the integuments had now increased, and pressing them with the finger caused pain, and left a pit.

These alternations of suffering and relief, the distressing head-ache, which never altogether left the poor patient, and the immunity of the intellectual faculties, led Dr. S. to predict disease of the cerebellum, according to the opinion announced by Lallemand in his *Anatomico-pathological Researches*. A doubt existed, whether the cerebellum was primarily diseased, or subsequently to a disease of the internal ear. However this might be, the man became worse; in spite of occasional intervals of a few days ease, each attack was more severe and alarming; he became almost quite deaf and stupid, and the external swelling extended along the parietal and occipital bones. A surgeon who was called in consultation differed in opinion from Dr. S., and recommended an incision upon the mastoid process. He considered that the disease was altogether external, and that no suppuration of the cerebellum could have taken place, because there were no symptoms of compression, and the intellect was little impaired. He was not aware of the results of Lallemand's researches. The

incision was made, and the bone laid bare, but no appearance of disease was to be seen; the lips of the wound were however kept apart. The result seemed at first very gratifying; the head-ache and deafness were surprisingly relieved; and the external swelling much reduced. His physiognomy however became more stupid, and his speech betrayed a wavering state of mind. It is to be observed, that during the intervals of ease, his appetite was always vigorous; unfortunately for himself he on one occasion had indulged to excess; he was seized with obstinate vomiting; became paralytic, and died on the 29th of June.

Dissection.—On cutting down to the bone, the temporal muscle was found to be healthy; the pericranium was somewhat thickened, and a spoonful of pus was found underneath it, between the squamous and zygomatic portions of the os temporis; a hole penetrated right through the bone, just above the meatus auditorius externus, and over the phrenological organ of destructiveness. The membranes of the brain were highly injected;—that portion of the left hemisphere, which occupies the middle and lateral fossa of the basis cranii, was very considerably increased in volume; the cerebral anfractuosities had disappeared, and the cerebral substance was unusually resistant and elastic; the dura mater was perforated opposite to the hole through the bone. Upon opening the lateral ventricles, it was observed that the left one was sensibly diminished in capacity; and right beneath it, a sac, or cavity of the size of a hen's egg was found; the medullary substance had been wasted away, so that the boundaries of the sac were formed by the cortical or gray portion—it terminated outwardly in a funnel-shaped prolongation, which communicated by the previously-mentioned apertures through the dura mater and the bone, with the abscess under the pericranium. The walls of the sac had a fibrous appearance, and altogether resembled an inflamed mucous membrane. The rest of the encephalon was normal.—*Ibid.*

7. *Case of Diphtheritis with Clinical Remarks.* By WILLIAM STOKES, M. D.—The subject of this case is a man, who was admitted into the Meath Hospital, August 10th, labouring under an attack of double pneumonia; he had, in fact, intense and neglected inflammation in both lungs; and, when he came into hospital, all the symptoms and signs of a violent pulmonary inflammation were present. The patient was, however, of a robust and strong habit, and did not, at the period of his admission, exhibit any appearance of gastro-enteric disease. A short time after he came into the hospital a quantity of blood was taken from his arm, which, on subsequent inspection, was found to be neither buffed nor cupped. Now, this was very remarkable, and interesting in a certain point of view, because, on a second bleeding, the blood presented an extraordinary coat of buff; and, in consequence of this, looking on it as an acute case, I was induced to treat him by bleeding, leeches, and tartar emetic. If he had manifested any symptoms of the typhoid pneumonia, or gastro-enteric inflammation, I would not have acted in this manner, for reasons which I have detailed in a former lecture. Under the treatment employed he experienced decided relief. He continued to use the antimonial solution for three or four days, during which he took eighteen grains of tartar emetic, and bore it remarkably well. On the fifth day a new train of symptoms appeared, and the report is as follows:—“His cough has, within the last few hours, assumed a laryngeal character; his voice is husky, and articulation difficult; his breathing laborious; and he complains of great soreness in his throat.” On examination, several thick patches of a dense, firm, white substance, were found on the tongue, velum, and back of the pharynx. Here, gentlemen, was a new disease, shown by exudation of this peculiar membrane and laryngeal cough. On the other hand, the original affection had been much alleviated; the right lung was almost healthy; and the left, which had been extensively dull on percussion, had nearly regained its natural clearness of sound. We immediately omitted the use of the tartar emetic; in the first place, in consequence of the resolution of the pulmonary inflamma-

tion, and secondly, on account of the supervention of this new disease. A large blister was applied to the throat, and the exudation on the fauces was brushed freely with a camel's hair pencil dipped in the strongest muriatic acid. On the seventh day, the report is, that he is improving rapidly; the patches of thick mucus are nearly detached; and it has been thought advisable not to apply the acid any more. The next day, however, his voice again became husky, and the laryngeal cough returned; we therefore ordered him to have the decoct. polygalæ, to use the muriatic acid again, and have his bowels freely opened. To-day his voice is clearer and louder, his cough better, his breathing is not so stridulous, and he states that he feels much better.

Gentlemen, this diphtheritis is a most formidable disease, and one which I believe very few of you have witnessed before. It is analogous, in many of its most prominent features, to that affection which the old medical writers called *cynanche maligna*; at all events, it resembles it in this, that in both there is the formation of a dense albuminous pellicle, (whence the name;) and I think that, as far as it goes, we may call it a species of croup in the cavity of the mouth and pharynx.

I said before that this was a formidable disease, and you will ask, perhaps, in what its danger consists? In the first place, it is characteristic of a bad state of constitution; in the next, we have another source of danger depending on a mechanical cause. What is it that we observe in this affection? This membrane is formed on the tongue, velum, tonsils, and back of the pharynx; if not arrested, it creeps on until it reaches the larynx; the inflammation continues its destructive career; and the patient may die with all the symptoms of croup; in fact, he dies in the same way as a person who has swallowed a quantity of boiling water. When a patient dies soon after swallowing a quantity of boiling water, it is generally not from the amount of injury done to the digestive tube, but from an extension of the inflammation to the larynx; and in this disease the inflammation travels in precisely the same way. Lynam was on the point of losing his life by croup; his laryngeal symptoms came on with great violence; for several days he was in imminent danger; and though we have succeeded in removing the disease for this time, still we are not quite sure of his recovery. We have used the strong muriatic acid on the authority of Bretonneau, who states, that he has not found any application so useful in diphtheritis; and as far as I have seen of its use in this hospital it seems to me a remedy of the greatest power.

There is another source of danger in this complaint, connected with its peculiar nature, namely, that it is not amenable to the ordinary resources of antiphlogistic treatment. We find local or general bleeding, blisters, purgatives, or antimonials of little avail, the only means we possess of combating the disease, are those recommended by Bretonneau, and I must repeat, that from the result of the present case, and a few others which have occurred in this hospital, we have no reason to doubt the efficacy of the application. It is a fortunate circumstance, indeed, that we can avail ourselves of a remedy so simple and valuable when disease appears in so threatening a form, and our ordinary resources are found to be so feeble and inefficient. I beg of you to hold this case in memory; and if during the progress of some acute disease your patient should get a violent attack of laryngeal cough, and on examining the throat you find the characteristic membrane of this inflammation present, take the alarm immediately, and have recourse to the application of Bretonneau. Fix a piece of lint on a gum-elastic catheter, or some other appropriate instrument, and having dipped it in the strongest muriatic acid, brush the whole diseased surface, and continue to do this daily, or oftener, until your patient gets relief. I shall bring this case again before you at a fit opportunity; our patient is better to-day, and has had no increase in his symptoms for the last thirty-six hours, so that I hope we shall be able to effect a cure.

It may be asked, was the diphtheritis in this case produced by the employment of tartar emetic? Without denying that this might be the case, I must observe, that no instance of a similar kind has occurred among the hundreds of

patients who have been heretofore treated with tartar emetic in this hospital, and that it would be therefore not unreasonable to infer, that the disease in question has not been produced by it. There is one more remark which I wish to make before I quit this subject. Whenever you have a case of this kind to manage, be cautious in your prognosis; it shows a bad state of constitution, and you cannot tell how it may terminate. I have seen many bad diseases come after it; and the mere occurrence of such an affection is sufficient to prove a morbid state of the whole constitution.—*London Medical and Surgical Journal*, September 14th, 1833.

8. *Case of Phthisis Laryngea, with Remarks.* By WILLIAM STOKES, M. D.—The patient is a man labouring apparently under an affection of the larynx; he has aphonia to a great degree and some cough. I direct your attention most particularly to this case, because it is one of extreme interest, and involving several considerations with respect to disease and its treatment. What are the symptoms observable in this man? Cough of a laryngeal character, loss of voice, emaciation, and hectic. This is a combination, to which you will hear the name of phthisis laryngea very frequently applied. It is commonly supposed, by persons not conversant with pathological anatomy, that we have a great many varieties of phthisis, and among the rest phthisis laryngea, that is to say, consumption depending on an affection of the larynx. More recent researches, however, have shown, that what has been termed laryngeal phthisis has on careful and accurate investigation often turned out to be phthisis pulmonalis. It has been proved, that in the great majority of chronic laryngeal affections, in addition to inflammation and ulceration of the mucous membrane of the larynx, the existence of tubercles in the lungs has also been discovered, so that when a case of the present kind comes before you, it is very probable that the patient is consumptive, although he presents nothing more than the symptoms of a laryngeal affection. This I believe is the opinion best supported by facts, and several of the most distinguished pathologists assert, that they have never seen the ulceration of the larynx without the coëxistence of pulmonary tubercles. I draw your attention to this circumstance, as it is not generally observed or commented on by British practitioners, and yet, where is the intelligent practising physician who does not immediately perceive its importance? In a case of this kind, possessing such information, we would not think of employing mercury, we would never have recourse to tracheotomy, nor would we adopt as therapeutic agents the severe means generally used. Surgeons are often not aware of the exact nature of this disease, or medical men in general. I remember having witnessed a case in which an error of this kind was committed; the patient was a gentleman, labouring under an inflammation of the mucous membrane of the larynx of considerable standing, which, owing to some cause, was much exacerbated; he had been mercurialized for it, and when I saw him, he was like a person in the last stage of consumption. He had great rapidity of pulse, emaciation, hectic, and profuse expectoration. On applying the stethoscope, in order to satisfy myself, I found several large caverns in the substance of the lungs, which must have existed there for a considerable time. Now, any person cognisant of the fact, that most of these cases of chronic laryngeal disease are accompanied by pulmonary consumption, would certainly never think of employing mercury, which only accelerates the fatal termination of an incurable disease.

To persons unacquainted with pathology and medicine, it seems strange that diseases, apparently of so curable a nature, and particularly in their commencement, when the symptoms are only those of slight laryngeal cough, should prove so refractory to all modes of treatment; and this is apt to beget doubts of the efficacy of medicine. It is, however, no opprobrium to our art; the seeds of disease lie deeper and have been much longer planted than most persons are aware of; and at the very time when there are scarcely any phenomena capable of exciting attention, except a mild laryngeal cough, and some slight wasting

of flesh and acceleration of pulse, the structure of the lungs may have become extensively altered by tubercular development. I do not deny that the larynx may be the first seat of the disease, I only contend, that in a vast proportion of cases, (of what is called phthisis laryngea,) the primary affection has been the formation and growth of tubercles in the lungs; and that though in most cases the disease *appears* to commence in the larynx, still on closer examination we shall find that it is caused by pulmonary tubercles. What is the ordinary history of such cases? A medical man is called in to attend a patient who is labouring under laryngeal cough and sore throat; the case is set down as a chronic affection of the larynx in many instances, and the possibility of pulmonary complication is overlooked. Yet if you come to investigate such cases with accuracy, you will find, that previous to the appearance of symptoms of laryngeal disease, there were decided signs of pulmonary disorganization. You will find, that at a period before the occurrence of his present affection, he had cough which was not of a laryngeal character, or he had spitting of blood, or some other symptom of disease of the lungs. I think we may safely lay it down as a general rule, that in all cases of chronic laryngitis which have been preceded by pulmonary symptoms, there is every reason to suspect the existence of tubercles in the lungs.

This subject, gentlemen, is of importance also in another point of view; because in certain cases of disease of the larynx it is very difficult to determine with certainty whether the patient has an affection of the lungs or not. In some of these cases we have stridulous breathing, in others not; in some there is an obstruction to the entrance of air into the lungs, in others no such impediment exists. In those cases where there is a mechanical obstruction to the entrance of air into the lungs, we find that all the phenomena of respiration are masked, and it is extremely difficult to make a satisfactory stethoscopic examination. The air enters slowly and feebly into the lungs, its passage through these organs is marked by a corresponding want of intensity, and all the usual physical signs are rendered obscure. We may have a cavity in the lung, and yet the air will pass so slowly and feebly into the lung, that we cannot hear with any degree of precision the sound which it makes in passing through that cavity. There may be gargouillement, there may be cavernous râle, but we cannot hear them; all the signs of the different stethoscopic phenomena are almost entirely lost. Again, the patient is aphonic, and what is the consequence? We lose all the phenomena connected with the voice, we cannot examine the pectoriloquy or the resonance. The very sound of stridulous breathing obscures any other sound that may exist; so that many circumstances, as you perceive, render it very difficult in such cases to say positively that there are tubercles in the lung. *This, however, refers peculiarly to those cases where there is stridulous breathing, for where this is absent, as in the man above stairs, we are better able to detect their existence, and in most instances can make a pretty satisfactory examination.* But how are we to ascertain the presence of tubercular matter where the breathing is stridulous? This is a matter of difficulty, but by attending to the following directions you will (generally) be enabled to arrive at a proper diagnosis. In the first place we have a direct sign from percussion. The mere mechanical obstruction to the entrance of air into the lungs will not affect or alter the phenomena of percussion, and although the stethoscope is useless here, and gives us no certain information, we have a valuable auxiliary in percussion. If you should therefore meet a patient who has been labouring for some time under laryngitis, who has acceleration of pulse and wasting of flesh, and that on examination you find (the upper) portions of the chest dull on percussion, you may be almost certain that he has tubercles in the lungs. You must next inquire into the history of the case, and if you find that the laryngitis has been preceded by hæmoptysis, or other pulmonary symptoms, your suspicions of the existence of phthisis will be more strongly confirmed. Lastly, if you take into consideration the very frequent complication of these two diseases, and combine all this knowledge, you will be able to make a correct and well-grounded diagnosis.

You will discover on a careful examination that in most of these cases the formation of tubercles was antecedent to the occurrence of laryngeal symptoms. Remember this, therefore, in your prognosis, and you will never expose your patient to the torture necessary to remove a chronic laryngitis. With respect to the patient whose case I have been commenting on, it appears that he had symptoms of pulmonary disease before the laryngeal affection took place. He had first, as he states, hæmatemesis, then cough, and afterwards hæmoptysis. As he has no stridulous breathing, you can examine his chest more satisfactorily, and ascertain whether he has tubercles or not. You will find that he has distinct cavernous râle, that his voice is more resonant on the right side of the chest than on the left, and combining this with the existence of laryngeal disease, and recollecting that the pulmonary affection preceded that of the larynx, you may decide with certainty that he has consumption, and that the laryngeal affection is only an accidental complication.—*Ibid.*

MATERIA MEDICA.

9. *Observations on Local Blood-letting and on some New Methods of Practising it.* By JONATHAN OSBORNE, M. D.—Opening the veins of the foot is a practice still resorted to in cases of obstructed menstruation by practitioners who must be above the influence of vulgar prejudice on the subject. The trials which I have made have not enabled me to arrive at a conclusion as to the question whether this practice possesses any advantage above general blood-letting. Bleeding from the veins of the tongue is another old practice now nearly forgotten, having been superseded by the more manageable mode of taking blood by leeches. By opening the veins on the back of the hands we can usually obtain blood with great facility when particular circumstances forbid bleeding in the arm. Bleeding from the jugular vein is not well suited for taking blood from the head, because the external jugular, which alone is within our reach, is supplied from the superficial veins of the neck, and principally from those of the larynx, but not from the interior of the head. Great benefit, however, may be derived from opening it in sudden attacks of croup.

The application of leeches is frequently a cause of great fatigue to the patient, from the length of time during which stuping with hot water is kept up in order to promote the hæmorrhage from the leech bites; and, in some cases, when this operation is continued under the bed-clothes, the damp communicated to these produces cold, and is uncomfortable to that degree as often to prohibit their use. All this is obviated by the application of warm cloths of linen or calico applied perfectly dry, and removed in succession according as they have become saturated. By these means the blood is absorbed by capillary attraction, a process which cannot take place with wet applications. When dry cloths are thus applied and renewed to cuts in the skin, or to leech bites, I have found the bleeding uniformly to continue as long as the application was kept up, it being required only to supply fresh portions of the dry cloth to insure the continuance of capillary attraction, and thus to prevent coagulation at the mouths of the vessels.

This mode of managing leeches I am thus particular in describing, as it has enabled me to apply them in a case in which, if wet cloths were used, very serious danger might arise. I allude to bronchitis, both acute and chronic, in which the application of leeches to the larynx and to the trachea in the triangular space between the mastoid muscles, has appeared to me to be the most decisive and immediately successful remedy of all those which I have ever employed. In laryngitis, their utility is obvious and commonly recognised, but in bronchitis it has escaped notice, that the most immediate depletory process which can be performed on the mucous membrane of the bronchial tubes is that of leeching the trachea and larynx. It appears to remove blood not only

from the mucous membrane of that part of the bronchial tube to which the application is made, but also from the whole tract of the bronchial tubes throughout their ramifications, being nearly equally efficacious in putting an end to the cough, when the remoter tubes are affected, as when the larynx is the chief seat of disease. This application is also of singular efficacy in stopping the cough of phthisis, insomuch, that by resorting to it according as required in cases in the hospital, we have been enabled to secure sleep at night, and during the day to keep the phthisical patients so free from cough, that a superficial observer might readily believe that we had cured the disease.

It has been ascertained that leeches will continue to live and to draw blood, although immersed in water at a temperature considerably above 100°. Now, in cases of violent inflammation of the abdominal viscera, when local abstraction of blood and warm fomentations are both at the same time imperatively demanded, as soon as leeches have been applied to the abdomen the patient may immediately be placed in a hip bath, without waiting for them to fall off. Thus we may cause the relaxation and diminution of sensibility produced by the heat to combine with the benefit to be derived from the topical loss of blood.

The application of leeches to mucous surfaces was, I believe, first described by the Surgeon-General, Mr. Crampton. Although I have not met with any case of cynanche which required the direct application of leeches as advised by him, yet there can be no doubt as to the immediate benefit to be derived from it. I have resorted to the mode of applying leeches to other mucous membranes by passing a needle and thread through their tails, at about one-fourth of an inch from the extremity. This practice, so far from incapacitating them from action, causes them to bite with increased ardour, and, in fact, may be used to stimulate torpid leeches. The thread to be passed through the tail of the leech should be strong, and its extremities are to be held by the operator, while, if necessary, he may direct the mouth of the leech by a probe, or channel made with a card, to the place where its services are required.

In certain head-aches confined to the frontal sinus, which, although originally derived from derangements of the digestive organs, yet do not cease when those derangements have been removed, a prompt relief is obtained from applying leeches in this manner to the interior of the nostrils; and in those cases no benefit is usually derived from leeches externally applied. The bleeding is usually rather more copious than if the application had been made on the skin; if, however, it should be deficient, the patient may encourage it by breathing over the vapour of hot water.

In inflammations of the conjunctiva, a leech thus applied to the Schneiderian membrane of the adjacent nostril evidently unloads the vessels of the eye. This application I have found of great use after the previous application of leeches to the tarsal conjunctiva. It appeared to render the improvement derived from the latter permanent, and prevented the necessity of repeating it.

In inflammations of the ear, this mode of applying a leech inside the meatus is eminently useful; and next to it in importance is the application of them behind the ear as near as may be to the meatus. It may be objected, that such applications are not well suited to inflammations of the internal parts of the ear, inasmuch as those are supplied by a different set of vessels from the external. But the effect of leeches is independent of vascular connexion. For example:—in inflammations of the stomach or intestinal canal, the benefit derived from leeches applied to the corresponding region of the abdomen is acknowledged by all; but the vascular connexion between those parts is as remote as that between distant regions of the body, the one being supplied from the arteries arising from the abdominal aorta, and the other from the epigastric and mammary arteries; and that there can be no anastomosis of vessels is evident from the interposition of the peritoneum, which insulates the viscera completely from the anterior parietes of the abdomen. The same observation applies with the same force to the thoracic viscera and to the brain. In all those

cases, however, the effect of local bleeding is proved so repeatedly in our daily experience, that the inability of satisfactorily explaining the way in which the effect is produced must not be allowed for one moment to press against the evidence of facts.

In inflammation of the mucous membranes of the bowels, especially of the rectum, the French practitioners apply leeches to the margin of the anus. If the leeches take externally, no benefit is derived, and to apply them internally is often difficult, on account of the violent contractions of the sphincter. Those contractions also prevent any considerable quantity of blood being obtained from the bites. I have employed a method of taking blood from the rectum, which obviates these inconveniences.—*Dub. Journ. of Med. and Chem. Science.*

10. *Croton Oil as a Counter-irritant.*—The croton oil has been lauded as a counter-irritant, by several writers in the late London Journals. It is repeatedly rubbed on the part where it is wished to excite irritation, so as to keep a fresh crop of vesicles constantly rising. Two or three drops night and morning will usually be sufficient. The following is Dr. HUTCHINSON'S account of the effects of this remedy, as given in the *London Lancet*, for the 18th of May last. "Six drops of croton oil, when applied to a sound skin, and rubbed in for a period of from eight to twelve minutes, speedily produces a rubescence, to a greater or less extent, depending upon the individual's susceptibility; this gradually increases, until a general, though moderate tumefaction occurs, apparently affecting parts deeper seated than I have seen occur from the use of any other external irritant. This is succeeded, in a period varying from six to twelve hours, by numerous vesicles, some distinct, others confluent, differing in size and shape; at first containing a merely limpid serum, afterwards a distinct and consistent pus, and terminating in slight scabs. The redness produced is not of a vivid, but of a dull brick-dust hue. These circumstances, though regular in their course, vary much in intensity, according to the parts upon which the oil is applied."

We have ourselves employed this application in four or five cases of laryngitis, and with the most marked advantage.

PRACTICE OF MEDICINE.

11. *Cases of Empyema.*—In looking over a late No. of the *Gazette Médicale*, (June 8th,) we met with the four following cases of empyema; and from their interesting character deem them worthy a translation into our own language. This affection was well understood by Hippocrates, Celsus, and many other ancient authorities; and cases in which a cure resulted from the performance of an operation, may be met with in their different works. Numerous cases have also been reported in the different journals of Europe, as well as of this country, where the same happy result has attended the timely performance of the operation. It is not, then, for the purpose of substantiating the fact, that the operation has *frequently* proved successful, that we publish the following cases; but rather to furnish additional interesting facts to the number already collected by different observers, in order that at some future period, we may be enabled by taking a comparative view of the whole, to arrive at some definite conclusions with respect to the best manner of performing the operation, as well as to the characteristics of those cases in which it promises to prove most successful. It is in this way alone that reports of cases of any disease whatsoever prove useful.

Observation I.—*Empyema produced by the repercussion of a variolous eruption, in which a cure was effected by the performance of an operation.* Pasquet Benjamin, a joiner by trade, æt. 25 years, of a delicate constitution, and lymphatic temperament, entered the general hospital of Tours, the 1st of Jan.

1832, labouring at the time under intense fever, and a commencing variolous eruption. Such was the degree of his excitement, that it was found impossible to retain him in bed; the eruptive process was likewise but very imperfectly carried on, and in spite of all the revulsive measures employed to hasten its completion, a repercussion of the disease upon the chest took place. Towards the close of the month of January, he presented the following symptoms: respiration difficult, short and frequent; a sense of oppression and weight upon the diaphragm; a feeling of suffocation on the slightest movement; an almost continual cough, and the recumbent position upon the right side impossible. The left side of the thorax was sensibly distended, the intercostal spaces much wider than in a normal condition, and particularly distended at the inferior and posterior part of the thorax; the heart was forced to the right, and its pulsations were readily distinguished at the inferior portions of the thorax of this side; finally, when the patient moved, a sense of fluctuation or undulation was evident both to the touch and ear, without even having recourse to the ordinary forms of auscultation. Upon the 1st of February the patient was moved into the surgical ward, where the operation for empyema was performed by M. Herpin. The pus from its great quantity had depressed the diaphragm to such an extent, that the incision was made between the tenth and eleventh ribs, about an inch from the costal angle, the spot at which fluctuation was most sensible. An incision two inches in length and parallel to the direction of the intercostal space, was made through the integuments, and the pleura being exposed, an opening about two or three lines in length was made into it with a bistoury. A liquid, inodorous pus, filled with serous flocculi, escaped from the thorax, at first with some force, and in jets. When about a pound had been evacuated, the wound was dressed with a pierced compress, (*compresse fenêtré*,) lint and a roller. He was ordered jelly broth for diet; and for ordinary drinks rice water containing gum arabic in solution, and an edulcorated infusion of tilleul flowers. For several days afterwards the bed-clothes as well as the bed of the patient, were completely saturated with pus. The suppuration became more and more foetid, so foetid was it indeed, that a silver probe used in dressing the wound, became blackened. The lips of the wound also became swollen and inflamed, the patient restless, complaining, and completely disheartened; his face pale, wan and haggard, his eyes sunken in their orbits, and his skin of an earthy feel. This state of things continued until about the 1st of March. He was now ordered a potion, composed of yellow bark, and sulph. sodæ, āā. ℥ij. infused in ℥iv. of water, to be taken twice a day; and to have injected into the thoracic cavity a decoction of bark, to which a few drops of a solution of chloride of lime were added. From this period a sensible amelioration in all his symptoms took place; the pus became white, thick, and of good quality; and after the lapse of a few days, the suppuration having almost entirely ceased, the injections were discontinued upon the 2d of May. Three days afterwards, the patient having eaten a little more than he was accustomed to, was attacked with a chill followed by fever; with cramps in the abdominal members, particularly those of the left side; œdema of the face and feet; whilst the pain and oppression in the side returned with all its former intensity. The day after the occurrence of this attack, (6th of May,) a large quantity of reddish, sanguinolent pus was evacuated, with the assistance of a silver canula, which was blackened as in the former case. The injections of bark and chloride of lime were again prescribed, and the wound dressed twice a day. (Diet jelly broth, with an infusion of tilleul flowers, and an edulcorated pectoral tisane for drink.) An evident improvement in his condition again took place; the suppurative action seemed to concentrate itself upon the inferior portion of the pleural cavity, and the introduction of the sound, gave exit to blackish clots of a somewhat fibrous texture. Towards the end of May, the discharge from the wound had nearly ceased, notwithstanding that the sound still penetrated to the bottom of the abscess, (four or five inches from the external opening,) it was necessary to overcome a resistance which seemed due

to adhesions that had formed between the costal and diaphragmatic pleura. The lungs became more and more painful. On the 30th of May the injections were again discontinued, and a purgative infusion of bark given daily for two days; a blister was also applied to the nuchæ, and kept open for several days. From this period there was no more fever, no more oppression; the patient gradually regained his embonpoint, and a healthy clear complexion. The 2d of July following, he was exhibited to the academy of Tours. The right side of the thorax was perfectly resonant, the left likewise gave a clear sound towards its superior part, but inferiorly, and in the neighbourhood of the spot where the operation had been performed, it yielded a dull sound. It is remarkable that this patient never expectorated any puriform matter, although he laboured, and still labours occasionally under a cough, accompanied with impeded respiration.

Observation II.—Empyema consequent to the repercussion of a rubeolous eruption cured by an operation. The patient in this case was an infant, æt. 7 years, who had suffered from an attack of the measles, which had been neglected for some days after its appearance, it then had laboured under a catarrhal affection of some intensity; finally, an empyema showed itself, which pointed near the inferior angle of the left scapulæ. M. Herpin opened the tumour with the caustic potash, and afterwards treated the abscess with injections of barley water, containing a small quantity of honey. The suppurative process continued a month and a half when the orifice of the abscess closed. In a short time, however, a feeling of uneasiness, oppression, and suffocation came on, and it was found necessary to reöpen the wound, which continued to suppurate for several weeks longer. The parents anxious for the safety of their child, confessed to the surgeon, that they had suffered several years back from syphilis. M. Herpin now prescribed the following preparation, viz. sirop of sarsaparilla and distilled water, āā. ℥vj. to which eight grains of the deuto-chloride of mercury, dissolved in a sufficient quantity of alcohol was added. Dose, a spoonful night and morning in a tumbler of milk. After some time the suppuration decreased, the wound cicatrized, and the child was cured. Nevertheless, the diseased side of the thorax has never acquired a size equal to the other, and this young person at present, aged twenty-three years, (1832,) labours under a slight deformity of stature, though enjoying excellent health.

We have here detailed two cases of empyema dependent upon an analogous cause, (the repercussion of an exanthematous eruption,) both of which were treated by making an opening into the thorax, through which the atmospheric air had free access to this cavity, and both of which were cured. The analogy between them, however, here ceases. The attack does not appear to have been of so violent a character in the case of the child, as in that of the young man, yet the former suffered from a relapse, and was cured only by being subjected to a special treatment. We regret to find in this observation less of detail than could be devised, and we regret also, that M. Herpin has favoured us with no commentaries upon it. He contents himself with simply remarking, that he the more willingly entered upon the mercurial plan of treatment, as he has always found this class of remedies exceedingly efficacious in eradicating the deleterious effects of the syphilitic virus. He gives us a third observation still shorter than the preceding, in which the disease was brought about by a cause altogether local.

Observation III.—Empyema succeeded to repeated attacks of inflammation of the lungs, cured by an operation. A soldier, æt. 26 years, who had suffered from repeated attacks of inflammation of the lungs, was attacked with empyema, which pointed below the inferior angle of the right scapula; entered the hospital of Tours the 27th of March, 1827. Upon the 23d of April the tumour was opened, and an ichorous pus evacuated; in a short time the discharges became so fœtid, that the other patients in the same ward were obliged to leave it, whenever it was dressed. Hectic fever came on, and the patient was on the verge of the grave for several days. A decoction of bark was prescribed to be

taken as in the other cases, and the abscess washed out with a similar decoction made more stimulating by the addition of several spoonfuls of a solution of the chloride of soda. He was now attacked with a miliary eruption; at the same time the suppuration diminished in quantity, and lost its foetidity. The eruption gradually disappeared, the fever was arrested, convalescence established, and the patient left the house the 22d of May following perfectly cured.

To these three interesting cases of M. Herpin, we will add a fourth, taken from *La Gazette Scientifique, &c. de Seine et Oise*, No. 2, April, 1833, which is still more remarkable on account of its complicated character, and the duration of the discharge.

Observation IV.—Secondary syphilitic symptoms; caries of the ribs; acute pleuro-pneumonia; empyema; operation; discharge kept up for nearly two years; cured. M. R. a lieutenant of cavalry, æt. 28 years, of a lymphatic temperament, and who had suffered from repeated attacks of the venereal disease, entered the hospital of Versailles the 19th of August, 1829. He was there successively treated for an engorgement of the neck, which terminated in suppuration, an abscess near the sterno-clavicular articulation, an indolent tumour about the cartilage of the third rib, which yielded to the application of the plaster of vigo with mercury, and for an intermittent sub-orbito-temporal neuralgia. He left the hospital the 6th of November convalescent. The 22d of the same month he reëntered, on account of the appearance of a tumour near the cartilage of the sixth rib, which had come on without any manifest cause, and was red, distended, and painful. Forty leeches were applied within the space of two days, without producing the slightest alleviation in the symptoms. On the 3d day it was deemed necessary to make an opening into the tumour, and a sound being introduced it was discovered that there was caries of the rib. The patient experienced some relief from pain for a short time, but it reappeared the following morning, and was accompanied with dyspnœa, dry and frequent cough, pleuritic stitches in several different spots, streaked sputa, in short all the phenomena of an intense pleuro-pneumonia manifested themselves. He was ordered to be bled the same day. The next morning he was found "in extremis," and insensible. Revulsive medication was now resorted to. He was next attacked with an erysipelatous affection of the left side of the thorax, extending as high up as the neck, delirium, and increased difficulty of breathing. Notwithstanding this complication of most dangerous symptoms, he in a short time was relieved of the pulmonary inflammation; respiration became more easy, and the respiratory murmur returned in the right lung; the state of the left lung, however, gave rise to a suspicion of the existence, either of an engorgement of its substance, or a pleuritic effusion. A dilatation of the side of the thorax, which took place shortly after, left no doubt but that the latter affection was present. After waiting until the violence of the inflammatory symptoms had abated, the caustic potash was applied, for the purpose of making an opening into the thorax. The eschar, however, still continuing adherent after the lapse of twenty hours, an opening was made with the bistoury, and about two pounds of a yellowish serum, containing flocculi of concrete albumen evacuated. The wound was dressed with the pierced compress, lint and roller. By night nine or ten ounces of matter had drained off. Although the operation which was borne with great courage by the patient, produced an evident amelioration in his condition; yet the suppurative process was not arrested, it still continued foetid and abundant, and the sputa itself became puriform in its character. Injections of the chloride solution were thrown into the cavity of the thorax, and immediately afterwards the patient complained of the taste of the chloride both in the throat and mouth. Already reduced to a state of extreme emaciation, the patient had the misfortune to be seized with an attack of acute articular rheumatism which required repeated blood-letting for its relief. The pain by this treatment was entirely dissipated, yet there remained an inflammation of the periosteum in two points, one which was seated upon the fibula, and terminated in resolution. Another upon the tibia which suppurated, and exposed

the surface of the bone for four or five inches; this however progressed favourably, and in six weeks was completely cicatrized. The two abscesses of the thorax, the one occasioned by the caries of the rib, the other resulting from the empyema, remained open a long time. In 1830 the suppuration was still going on, and had continued uninterruptedly from the period of the attack. During the summer of 1831, however, the patient picked up a little, and the discharge became less frequent, and consisted of a grayish serum. By the fourth of July 1831, the cough had entirely ceased; injections no longer passed into the cavity of the thorax; the left side of the thorax had contracted in a sensible degree; the respiration was perfect in the right lung, which now supplied the place of the left; and occasionally a few drops of pus would escape from the wound. A cicatrization of the wound was not long in taking place, and in the month of October following, M. R. left the hospital completely cured.

It does not appear that in this case the venereal constitution, which was much more strongly marked than in the infant, (the history of whose case forms the matter of the second observation,) required the exhibition of mercurials to effect its cure. M. R. was cured, moreover, notwithstanding that every symptom was unfavourable—temperament, former attacks of disease, complications, were all unfavourable to a cure; even the aspect of the fluid discharged was bad, for it has been remarked that collections of serous fluids are more difficult of permanent removal than the purulent empyema. What power then did he possess, that enabled him to resist so successfully this generally mortal affection? We see nothing at present but his youth; but how many individuals much younger than he have succumbed to the operation! There exists then a leading condition of the system in this disease which up to the present day has escaped the notice of our observers, and which demands their most serious attention.

“Both of the able surgeons who have published these observations,” remarks the editor of the *Gaz. Méd.*, “employed the caustic potash for opening the abscess. The period has not long passed when a pleural abscess was considered as altogether distinct from one occurring in other organs, and the surgeon considered it of the first importance to prevent the entrance of the atmospheric air into its cavity. Although these ancient opinions have undergone very great modifications, the employment of the caustic potash, in this or similar cases, has never been heretofore recommended. We see, however, that there exists no more danger in its application than in the employment of the bistoury. In all of these cases the matter discharged became in time very foetid, and it was necessary to counteract this tendency by injections. Might we not prevent the occurrence of this disagreeable circumstance, and perhaps diminish the quantity of the discharge, by replacing for the first few days, by small injections, a part of the fluid evacuated. M. Recamier has found this plan of treatment prove exceedingly beneficial in cases of abdominal abscess, and others. It is usually stated by writers upon this subject that a necessity for having recourse to such an operation does not often present itself. This assertion is in part probably correct, when we take into consideration the immense number of inflammatory affections of the thoracic viscera which terminate by resolution; yet I believe that did we more constantly bear in mind the importance of the operation, and be more constantly on the watch for cures seeming to indicate its necessity, that it would be much more frequently performed; and many who now fall victims to doubt and indecision, be restored to health and usefulness; at all events, they would experience an amelioration of their symptoms, and a temporary relief from their sufferings.”

12. *Pathology and Treatment of Gastritis.* Extracts from a clinical lecture by Dr. WILLIAM STOKES.—Numerous and important advances have been made in modern times, in the knowledge and treatment of gastric affections, and an enormous mass of facts have been accumulated of the deepest interest to practical medicine. It is, however, an unfortunate circumstance, and calculated to

excite much surprise, that a knowledge of the various forms of this inflammation is not sufficiently spread among British practitioners. There is still a great deal of ignorance and misconception on this subject; many persons are still accustomed to take a limited and superficial view of it, and a thorough acquaintance with the various modifications of gastric disease is at the present day anything but general. At one time we hear it called disease of the liver, at another time dyspepsia, sometimes it is termed constipation, and sometimes derangement of the digestive organs. It is true, that in such cases we find constipation, dyspepsia, and derangement of the digestive organs, yet these terms, as they are commonly employed to designate the disease, are at once both useless and improper, because they convey no correct or pathological idea. We owe, I think, to Broussais a great deal of our knowledge of gastric and enteric inflammation; it was his researches that gave the first clear and luminous view of a class of diseases previously obscure and little understood. He failed, however, in procuring the general assent of the profession to the propositions he advanced, and one of the principal reasons of this failure, and of the partial diffusion of the knowledge of gastritis in this country is, that although he brought forward a great number of valuable facts, he also promulgated a theory which has not been clearly or successfully proved. This theory has been rejected, and with the theory British practitioners rejected his facts. * * *

Gentlemen, we have had no acute cases of gastric inflammation of late in our hospital wards, but there are two cases of chronic affection of the stomach, on which I purpose to offer a few remarks. The first is the case of a man in the chronic medical ward. This man is from the country, and is at present labouring under an affection of the stomach, exceedingly common among the Irish peasantry. I have seen a great deal of it in the course of my own practice, and any person residing in the country, if he happens to be a medical practitioner, must have been repeatedly called on to treat this form of disease. At least persons, who labour under it, are chiefly of that class who live a good deal on potatoes, and I am inclined to think this exclusive diet must have some share in its production. Most of those, who come into hospital with this complaint, are from the country, particularly persons whose circumstances have been impoverished, and who consequently have been compelled to change their former nutritious and better food for a potato diet. In such cases, we generally find those persons able to date the commencement of their illness from a period (immediately) subsequent to this change, and it is therefore not improbable that the change of diet has some influence in the production of this peculiar gastric affection.

The patient, who is the subject of the case before us, is somewhat reduced in flesh and of a sallow complexion. He has complained of pain in the region of the stomach, extending to the back, right hypochondrium, and shoulder. He has had tenderness over the epigastrium, loss of appetite, pain and sense of distention, increased after eating; vomiting of yellow matter occurs two or three hours after taking food, succeeded by thirst. His pulse is soft and slow; tongue clear; bowels open. His illness, (and this, I think, is a point worthy of remark,) commenced four years ago with pain in the stomach, increased by eating and relieved by vomiting; and some time after this the vomiting began to be succeeded by thirst. The vomiting generally came on in an hour or two after taking his meals, and he threw up a quantity of yellow slime. Another important point is connected with the treatment he has undergone for this disease. He has been relieved by antiphlogistic treatment, locally employed; we treated him since his admission by leeching, blisters, and cupping over the stomach, and latterly he has been using narcotics. Ninety-nine persons in a hundred would be inclined to call this a case of dyspepsia, and so it is so far as loss of appetite and derangement of the stomach are concerned, but the worst of the thing is that they would look at it only in a single point of view, and treat it as mere nervous disease of the stomach. Well, with respect to this man's case, it is either a chronic gastritis, or it is a nervous affection, and mere dyspepsia.

Before we proceed further, let us see what is the precise meaning of these terms. Dyspepsia is a name given to that condition of the stomach, in which, without any sensible alteration of structure or circulation, the stomach does not perform its functions in a regular and proper manner, but there is no organic lesion; and if a man, labouring under simple dyspepsia, were to die, we could not detect any change in his stomach, so far as circulation and structure are concerned. Chronic gastritis is a lesion of the stomach, with a change of its circulation and a thickening of its lining membrane, or, in other words, with signs of actual disease in the stomach. Now, in my opinion, there is a great probability that this affection, which is so frequently observed among the peasantry of this country, is a chronic gastritis. It may, I grant, commence by dyspepsia, but, in its advanced stage, and it is only in this stage that such cases come under the care of medical men, it is most commonly a chronic gastritis. We have heard, it is true, no post mortem examinations of this disease, and can, therefore, only reason on probabilities, but if we look to that form of treatment which has been found most successful in affording relief, we find it to be that which is calculated to remove irritation and vascular excitement. Besides, the antidyspeptic treatment has failed, after extensive and repeated trials. In fever this gastritis is of very common occurrence; and here also it is most advantageously met by local antiphlogistic means. But there is another circumstance which you should always keep in mind: by the time you get persons labouring under this gastric affection to come and place themselves under your care, they have been ill for months, and perhaps years. The disease is certainly at this time very chronic; and you are aware that it is a general pathological law, of the truth of which we have the most ample proof, that where an organ has been long subject to functional derangement, there is a strong probability that more or less of organic change has also taken place. We seldom see the brain, or the lungs, or the kidneys deranged in function for many years without more or less of structural alteration; and we may conclude that any viscus, in which functional disorder has existed for a considerable period, will ultimately experience organic change. If, then, we connect with these facts the failure of the antidyspeptic plan and other circumstances, we are led to infer that these and similar affections are cases of chronic gastritis. I do not say it is so exactly, but I think the collateral proofs are very strong in favour of its existence.

Well, what have we done in the present instance?—We have endeavoured to regulate the man's diet; we have cupped and leeches the epigastrium, and afterwards employed counter-irritation. In all cases of a similar nature our treatment has been nearly the same; in most it has been followed by permanent relief; but where this did not occur, and the patient complained afterwards, we have had recourse to narcotics. This man has been latterly taking, with the most signal benefit, the eighth part of a grain of acetate of morphia twice a day. You will see in Dr. Bardsley's *Hospital Facts and Observations* that the acetate of morphia has been employed with singularly good effects in the treatment of gastric affections; and where its use has been preceded by leeching I have a full conviction of its value, as well as that of various other narcotics.

There is, gentlemen, another case,—that of the patient Denham, who has been complaining of pain and tenderness in the epigastrium, with loss of appetite, and intolerable thirst. His face and extremities are œdematous, urine not albuminous, bowels confined. His tongue is red, and thickly coated with fur; his illness commenced two months since. I looked on this as a case of chronic gastritis; for, you observe, he had all the symptoms, pain, tenderness of the epigastrium, red tongue, impaired appetite, and an insatiable desire of cold drinks. We treated him by leeching and blistering the epigastrium; we gave no purgative by the mouth, but obviated the costiveness by enemata. By this treatment much good has been effected. Since the leeching and blistering, his thirst, which was so excessive that I thought at one time he had diabetes, has completely declined; his tongue is much improved, and he no longer complains of any gastric pain. His appetite, however, continues bad; and it will

remain to be seen by the progress of the case whether this depends on want of tone in the stomach or actual disease.

In submitting these cases to your notice, it may not, perhaps, be irrelevant to make some observations on the pathology of gastritis in general. Many circumstances tend to prove that chronic gastritis is a very common disease. Although not admitting of direct proof, I think it is also true, that where dyspepsia has lasted for a long time, there is more or less of gastric inflammation. Nothing is more common than dyspepsia; and hence, in all probability, chronic gastritis is common also. We are not, however, to go the whole length with Broussais, and give the name of chronic gastritis to every case of dyspepsia which comes before us. Broussais is too much of a solidist,—he refers too much to the mere visible alteration of organs, and his idea is, that every case of dyspepsia is a case of gastritis; that there is scarcely such a thing as mere nervous dyspepsia; that all instances of this kind are only various forms of gastric inflammation, and to be treated as such. Here it is evident that theory has led him astray; for that this notion is incorrect has been proved by the circumstance that several cases of dyspepsia have been relieved by treatment not calculated to remove inflammation. We every day see cases of dyspepsia deriving the most decided benefit from the use of stimulants, wine, and a generous diet; and where this occurs, who is there that would venture to call them chronic gastritis? But although we do not go the whole length with Broussais, and justly reject the speculative part of his doctrines, still we owe a great deal to his industry and research: he has brought forward a multitude of valuable facts which were formerly but little appreciated or understood; and when you are called on to treat a case of dyspepsia, I think you should take the greatest pains to ascertain whether it be chronic gastritis or not.

The next thing I have to remark is, that it is extremely difficult to make out the diagnosis of chronic gastritis; we do not know one symptom which would enable us to draw a line of distinction between dyspepsia and chronic gastritis. You will read in books a minute detail of the symptoms by which they are separately characterized, and will think yourself capable of making a diagnosis; but when you come to practice, even in an hospital, you will find the affair involved in very great perplexity. Another thing is, you will have all the symptoms and causes equally prominent in the early stage of both. I have often stated, that if I were examined on this subject, and required to give a diagnosis between gastritis and dyspepsia, I could not tell the diagnosis. The truth is, their symptoms are identical. In chronic gastritis there is no fever, and the pain, flatulence, distention, acidity, loss of appetite, &c. are the same in both. I feel convinced that chronic gastritis is very often confounded with dyspepsia by British practitioners. It is treated as disease of the liver by blue pill and black draught; it is treated as dyspepsia by tonics and stimulants; it is treated as constipation by drastic purgatives. Constipation arises from a variety of causes, frequently from inflammation of the upper part of the tube. Now, observe the result of mistaking chronic gastritis for any of these three complaints. If it be taken for dyspepsia, it must certainly be increased by the tonics and stimulants which form the great bulk of antidyspeptic remedies. Run over the whole class of antidyspeptic remedies, and you will find them to consist chiefly of powerful stimulants. If it be treated as disease of the liver, of course blue pill is given, but what is the consequence? The liver is stimulated, and there are copious bilious discharges; but the true cause of the disease, the gastritis, is wholly neglected, and, by neglect, becomes certainly worse. It will be also neglected, and even much exacerbated, if taken for constipation and treated as such. How are you to make the distinction and steer clear of error where your course is obstructed by so many difficulties? Recollect the rules which I have before given on this subject. If the disease is chronic, the probability is, that there is more or less of gastritis in it, and the more chronic it is the stronger is that probability. In the next place, when patients apply to you for advice they are generally a long time ill, and have gone through several courses of

antidyspeptic remedies. Now, if you happen to get a patient who has been treated for months, or even years, with blue pill, bitter tonics, and stimulants, and find that he is rather worse than better, you have two data to go upon; your diagnosis will therefore be more likely to be formed safely and accurately, and your treatment successful.

You will ask me, perhaps, would I never employ tonics in the early treatment of dyspepsia? To this I will answer—never, in case it should be combined with gastritis. Here, however, I must remark, that Broussais has gone too far in restricting such cases to a pure antiphlogistic treatment throughout, for I believe there is a period when such treatment will do no good. When we have completely removed all irritation by the former plan, I think we may then have recourse to tonics with decided benefit. When we consider the curative action of tonics, stimulants, and bitter medicines, in the treatment of the majority of diseases where they are employed, we find that they are most efficacious and successful when preceded by a judicious antiphlogistic treatment. We shall see more of this as we proceed.

There is another case which I wish to notice: it has been, I believe, one of an acute character; I allude to that of the man in the Fever Ward. This person, after committing an excess in drinking, got sickness of stomach and vomiting. In your investigations of any case which comes before you, it is of importance, towards finding a correct diagnosis, to hold these two things in view,—the exciting cause, and the first symptom of disease. Here you have, in the first place, excitement of the stomach from the use of spirits, and afterwards irritation, manifested by the vomiting. This was followed by loss of appetite, constipation, pain in the lower part of the left hypochondrium, foul tongue red at the tip, symptoms which indicate irritation of the mucous membrane of the stomach and intestines. When he was admitted into the hospital, however, what he chiefly complained of, and what were certainly the most prominent symptoms, were tightness across the chest, great difficulty of breathing, and harassing cough. His cough was indeed very severe, his sputa slightly tinged with blood, his breathing very much accelerated, and, to a superficial observer, he would appear to labour under chest disease. But, remark, we found out that he had been complaining of these symptoms for about three weeks, and consequently, if they had been pulmonary symptoms, they must have proceeded to a very alarming extent in that time. Mr. Lees examined him by percussion and with the stethoscope, but could not detect any disease of the lungs, and he was examined by myself on the next day with the same result. Moreover, the patient had been previously treated for pulmonary disease without success. We were, therefore, led to conclude that there was no original disease of the lung, but only sympathetic irritation, depending on gastritis. We took small quantities of blood from his arm, leeches the epigastrium, kept his bowels open by enemata, and under this treatment we saw all his symptoms disappear, as it were, by magic. This is a remarkable case, giving us an illustration of the manner in which gastritis may simulate other diseases, and exhibiting the importance of attending to the exciting cause and first symptoms of a disease in order to arrive at a correct diagnosis. Here you see it putting on the semblance of pneumonia, in other cases it assumes the guise of encephalitis. It was remarkable, that the bleeding and leeching increased rather than diminished this man's strength, for after their employment his prostration nearly disappeared. You will see a great many of these cases in the course of practice, where the primary mischief is masked by a train of prominent sympathetic phenomena, and in which your diagnosis is to be founded on the following circumstances. These persons labour under a kind of fever; there is generally severe harassing cough, and respiration is considerably accelerated; their symptoms have been of several days' duration, and when you examine them with the stethoscope, you find that the pulmonary symptoms are not accompanied by corresponding organic lesions, and have not advanced in proportion to their duration. You either find no disease at all in the lungs, or a bronchitis too

slight and trivial to account for such alarming symptoms. You next examine the larynx, and finding there no evidence of morbid change, you look for the cause of the cough in the digestive tube, and most commonly trace its existence to a concealed gastritis. If you meet with a case in which violent cough, laboured respiration, and other symptoms of pulmonary disease have existed for a considerable time, without any signs of disease of the lung sufficient to account for them, you may often sit it down as a stomach affection, and direct your treatment accordingly. Generally speaking, this simulated phenomena is most commonly met with in children, but instances of it in adults are by no means rare. Another thing is, if you happen to have tried pectoral medicines, and found them to fail, your diagnosis will be more certain. You remarked the case of a man who was here some time back, labouring under what may be called a *tussis firma*; well, this was dependent on gastritis. We treated him with leeches to the epigastrium and iced water with most signal benefit. He committed some excess in eating, and had a return of his complaint; he was treated again in the same way, and recovered. I remember having attended a lady some years ago, who complained of some feverishness, with very severe and harassing cough. Not being aware of the nature of the disease, I treated it as a case of fever, with irritation of the bronchi. The fever declined, but the cough continued without amendment; I was much embarrassed by its obstinacy, when one day, happening to be in attendance, the lady remarked that she had been under Dr. Cheyne's care for a similar complaint, and derived much benefit from leeches to the epigastrium. On this hint I acted; the leeches were applied immediately, and my patient's cough entirely disappeared. You will observe this is the point to which I would direct your attention; consider that the diagnosis depends on the persistence of pectoral symptoms; consider that if it were disease of the lungs, it would, in the course of two or three days, produce lesions capable of being easily perceived. But if this be the case, and you look in vain for any organic change to account for such excessive cough, you will seek for its cause elsewhere, and refer it to sympathetic irritation, produced by disease of some other organ, and this is most commonly the stomach. In connexion with this, I have to notice a very interesting fact in the pathology of gastritis. In such cases as the above, you will generally find but little direct evidence of gastric irritation. The patient has no vomiting, he complains of very little pain, and the epigastric tenderness is very slight. Here is the law by which such affections are regulated. In those cases in which the sympathetic irritation is most strongly marked, the usual or local symptoms of the disease are least apparent. We see cases of this kind apparently consisting of chest disease, and sometimes even assuming the appearance of cerebral disease, or tetanic symptoms, while the true signs are completely masked. You will find in Andral's work, a remarkable case of this kind, in which the ordinary symptoms of fever, vomiting, pain, and epigastric tenderness, continued for a few days, when tetanic symptoms set in, and immediately those which were indicative of gastric irritation disappeared. But we are not to be deceived by the supervention of sympathetic irritation manifesting itself in other organs, nor are we to suppose that the gastric affection has subsided because we have an imposing train of symptoms existing in other parts. As long as the irritation continues, no matter in what organ it appears, we have strong evidence that the disease, though lurking, is still unsubdued. It is of importance to bear this in mind when you come to treat cases of sympathetic irritation depending on gastritis. If you treat them as pulmonary disease, as any superficial observer, or any person unacquainted with the use of the stethoscope would be liable to do, your mistake will be, indeed, a very serious one. In the first place, the gastritis will inevitably be increased by being neglected. In the next place, though the internal remedies which are ordinarily employed for the removal of pulmonary affections, as tartarised antimony, squill, and other similar means, obviously produce the worst effects in gastric disease, and must tend materially to its exacerbation, so that there are in such instances two sources of exaspera-

tion, one arising from neglect, the other from the employment of therapeutic means which are totally contra-indicated by the nature of the disease. Remember, therefore, that where there are violent symptoms of disease of the lungs, and where these have gone on for several days without any proportionate lesion of these organs, that you may look for their cause and origin in a concealed gastritis. Recollect also, that in such cases the gastritis may be nearly latent, and want most of those symptoms by which it is generally characterized.—*Lond. Med. and Surg. Journ. May 25th, 1833.*

13. *Treatment of Erysipelas with Mercurial Frictions.*—M. CASIMIR BROUSAIS employs with great success mercurial frictions for the cure of erysipelas; but this remedy is not exempt from inconvenience, sometimes producing violent salivation, and more or less intense stomatitis. Two examples in which these affections resulted from the use of the remedy just noticed applied for the cure of erysipelas, are recorded in *La Lancette Française, February 16th, 1833.*

14. *Inflation of the Bowels.*—MR. BLACKLOCK, in a communication in our contemporary, the *Glasgow Medical Journal*, for May, 1831, states that about thirteen years previously he attended a child whose bowels could not be moved by any of the agents usually employed in cases of obstruction, although there were no symptoms of inflammation till towards the close of the scene. Having obtained leave to examine the body, nothing could be discovered to account for death, but a very complete intussusception in the course of the ilium, and which immediately disappeared on inflating the bowels with the blow-pipe. It occurred then to Mr. B. that this might have happened had the bowels been inflated during life. Mr. B.'s son, about three years of age, was attacked with constipation, so that during nine days no evacuation could be procured from his bowels, notwithstanding the most persevering administration of purgatives, and the almost hourly use of enemata. At length Mr. B. had recourse to inflation, and the child immediately had a free evacuation. Mr. B. has since tried the remedy frequently, and often with the best result.

15. *Iodine in the Treatment of Salivation.*—In a recent number of *Hufeland's Bibliothek der Practischen Heilkunde*, there is a note strongly recommending iodine in cases of severe salivation, which is represented as removing the most violent inflammation of the salivary glands, and even healing ulcerations produced by mercury within a few days. The dose is two grains a day, increased to four. The following is the formula: *R. Iodine, gr. v. solve in spt. vin. rect. ℥ij.; adde aq. cinnam. ℥ijss.; syrup. simp. ℥ss.* Dose, half a table-spoonful, and gradually increased.—*Med. Gaz.*

16. *Rheumatism Cured by the Common Artichoke.*—M. COPENMAN relates in the *London Medical Gazette* for March last, several cases of rheumatism cured by the common artichoke. Mr. C. uses the article in tincture and extract, but prefers the latter. This is made by evaporating the expressed juice of the leaves and stalks to a proper consistence for making pills. Of the former preparation he gave ℥j. to ℥ij. three times a day; of the latter, grs. iij. three times a day. This remedy, he says, exerts no apparent influence over the functions of the skin; sometimes it clears the urine and increases its quantity, but not always; it produces apparently no stimulating or narcotic effects; but when given in large doses it acts more or less violently on the bowels, causing griping pains and purging, and as soon as this takes place, it ceases to produce any beneficial influence upon the disease.

Four cases of rheumatism are also recorded in the *London Medical and Surgical Journal* for August 31st, by Mr. J. J. Hallett, in which the remedy was administered with success. Mr. H. uses the juice only, which he extracts by cutting the fibrous and fleshy portions of the leaf into short pieces, convenient for bruising.

ing in a marble mortar. The juice is then easily separated from the pulp by pressure, and may be preserved by adding one ounce of spts. vin. rect. to every five ounces of the filtered juice. Mr. H. has never seen this produce catharsis.

17. *Inflammation of the Mucous Membrane of the Bowels.* Extracted from the Clinical Lectures delivered at the Meath Hospital. By Dr. WILLIAM STOKES:— This case would appear at first sight somewhat perplexing; but, by considering that this patient has had no irritability of stomach or vomiting, that during the course of his disease he has had thirst, but no desire for cold drinks, and that symptoms of irritation of the lower part of the bowels have been absent, you will be able to infer that it must be inflammation of the intermediate part of the digestive tube. This patient is, however, still in a precarious state, though he derived much benefit from the application of leeches to the right iliac region, and his head-ache rapidly subsided after their use; his tongue is still foul, and he continues very feverish. On Saturday he was very ill; he complained of ardent thirst, his respiration was fifty in a minute, but the stethoscopic signs of disease were insufficient to account for such acceleration of breathing. Now, you all will recollect, that I have often told you that where there is fever and extremely hurried respiration, without any distinct evidence of disease of the lungs or windpipe, we should always look for the source of the disease in the digestive tube, and that this is most commonly found to reside in the stomach. In this man's case we could not, by the stethoscope or percussion find any cause for the increased rapidity of respiration; but we observed that his belly was swollen and his thirst urgent. We applied the leeches again on yesterday with the most extraordinary benefit; the head-ache, tympanitis, and laboured respiration were manifestly relieved. An objection might be raised to the efficacy of this mode of treatment, as the improvement took place on the fourteenth day, and it might be said that it was an improvement which depended on a crisis. To this I will answer, that I have seen so many cases of improvement after leeching without crisis, that it is unnecessary to take this into consideration, and that in the present instance there has been no crisis is obvious, as the patient is still in a bad condition. If all his symptoms began to decline on that day, then indeed the effect of crisis might be reasonably inferred, but his original affection still continues; and therefore it is fair to conclude that his improvement is attributable to the remedies employed. There is another point with respect to leeching in gastro-enteric fever; *we have seen numerous instances of crisis brought on by the application of leeches to the abdomen.* This is a curious circumstance; but I have seen it occur in so many cases that I feel convinced it would not have come on if the leeches had not been applied. I have seen the application of leeches and the supervention of crisis in such close and constant connexion, that I look on them in the light of cause and effect. Can we explain this? If you look to those diseases which have a tendency to terminate by crisis, you will find that they consist of cases in which there is no great preponderance or excess of irritation in any particular organ. Of this simple typhus is one of the most remarkable examples. When there exists a decided point of irritation in any particular part, the tendency to terminate by crisis is much less. Thus we seldom observe a distinct crisis in cases of acute enteritis or hepatitis, or inflammation of the peritoneum. Whenever we bring on a crisis in any disease in which there is distinct irritation of some particular organ or organs, we generally accomplish our purpose by reducing the local inflammation, and placing the organs in such a state as to give nature fair play. This is a point I have not seen sufficiently dwelt on in any medical work, but it is one of great importance, and which I wish to impress upon your minds. I have seen the application of leeches to the abdomen so frequently followed by a crisis, that I consider it fair to connect these occurrences in the relation of cause and effect. In these cases of the secondary inflammations of fever, it would seem that the tendency of the general disease to terminate by crisis, is prevented by the intensity of a local inflammation, which by its sympathetic irritation keeps up a febrile action. Now

if you modify or remove altogether this local affection, you, as it were, reduce the fever to the state of simplicity, and allow the tendency to a critical termination to operate.

A few more observations on this case are necessary. This patient exhibited one peculiar symptom, not generally described in these cases, a very evident pulsation of the abdominal aorta and the vessels which it sends to the viscera of that cavity. It appears that this is a circumstance of common occurrence, and that in most cases where there is acute local irritation the arteries going to the affected part take on an increased action independent of the heart's impulse. Thus, in cases of whitlow there is a manifest excitement observed in the arteries of the corresponding arm. The same thing I believe takes place in enteritis, and we may look on the increased pulsation of the aorta as arising from enteritic inflammation; when you lay your hand on the abdomen of a patient labouring under this disease, you often feel the vessels beating very strongly, *though neither the heart nor the pulse at the wrist is proportionally affected*. I do not say that we are to look on every case of pulsation of the abdominal arteries as the consequence of enteritis or fever, but where we find it occurring thus in fever, we are to conclude that it is indicative of disease in the bowels. We have constantly noticed this pulsation of the arteries of the abdomen to subside after the application of leeches; we have also seen it decline and increase in proportion to the existing disease; and I think we have many circumstances to prove and warrant us in concluding that it accompanies the disease of inflammation of the mucous membrane.

Another point which I look upon as somewhat new, is presented by this man's case. He had incessant thirst, but his desire was for warm drinks, and he refused cold. We may found a part of our diagnosis on this circumstance. In cases of acute gastric inflammation, patients are harassed by a burning thirst, there is an urgent desire and a constant demand for fluids, but these must be cold, the sufferer generally refuses all others. You will see in any work on toxicology, that in cases of poisoning by corrosive substances, which is only another form of acute gastritis, there is an insatiable desire for cold drinks. In the present instance we find our patient complaining of great thirst, but he prefers warm drinks, and never uses fluids in a cold state, a peculiarity from which I am led to infer that he has no gastritis, but that the inflammation is seated lower down in the digestive tube. When the inflammation is seated, say in the ileum, we have it in a part of the tube less sensible than the stomach. There is the desire for fluids, but not the demand for cold fluids. But when the stomach is the seat of disease, there is both the desire for fluids and relief from the direct refrigeration of the suffering organ. Another important subject for consideration may be noticed in this case. He has had all through his illness more or less tympanitis, a circumstance to which I am anxious to call your attention, as connected with it is one of the worst errors in practice. From a dangerous habit of prescribing without taking the trouble of searching for causes, and from the universal leaning to specificism in medicine, many practitioners are in the habit of giving the spirits of turpentine when called to attend cases of this kind. Several cases have, indeed, been relieved by this plan of treatment, but I deny that tympanitis occurring in the acute stage of fever has ever been relieved by spirits of turpentine. We are to consider the tympanitis of acute gastro-enteritic fever as one of the consequences of inflammation, and its removal is to be effected only by removing the exciting cause. Can this be done by direct stimulation of an inflamed mucous surface with spirits of turpentine? Certainly not. If we give spirits of turpentine, the patient is purged, (frequently with great violence,) the tympanitis, too, disappears, but the next day we find a manifest increase of fever and thirst, the abdomen is more tender than before, and the tympanitis returns. You may give another dose, but if you do the fever assumes an alarming aspect, marked by the supervention of coma and delirium. Tympanitis we should always consider as one of the symptoms of acute inflammation, and never give turpentine in the commencement of the disease. In the ad-

vanced stage of the disease, where turpentine may be employed with benefit we find the tongue soft, and the abdominal tenderness inconsiderable, and here the safest mode of employing it is by injection.—*London Medical and Surgical Journal*, July 20th, 1833.

18. *On Delirium Tremens.* From Dr. STOKES Clinical Lectures.—Delirium tremens is generally treated in a very empirical way. What is the general treatment of this disease in these countries? It is stimulant. Patients who are attacked by it, are universally ordered stimulants; whiskey, wine, brandy, and porter are the usual remedies employed; stimulation by ardent liquors is carried to the highest pitch, and in their administration confidence is placed, but any of the senior students, who have attended other hospitals, and seen the consequences of such treatment, must acknowledge that its result is too often fatal. It is, at least, an undoubted fact that many persons die under this plan of treatment, and we should therefore pause before we enter on it, and carefully investigate the peculiar symptoms and history of each case, and endeavour to ascertain whether such a line of treatment be consistent with sound pathology or not. It appears to me that a common source of error lies in not sufficiently distinguishing the causes of delirium tremens. It is an important law of pathology that similar symptoms may arise from very different causes; we have this exemplified every day in practice; we see the phenomena of inflammation of the brain arising in one case from the presence of too much blood in that organ, in another from an anemic condition. In the same way we may have the ordinary symptoms of hypertrophy of the heart from too much or too little blood.

It would appear, that in some cases of delirium tremens much benefit has been obtained from the administration of stimulants, and on this an erroneous practice has been founded, all cases are considered alike, and all are treated in the same way. My experience, with respect to the treatment of delirium tremens, is as follows: I divide all forms of the disease into two classes, one in which the delirium is the result of an immense debauch, another in which the patient has been in the habit of using ardent spirits in quantities, and has suddenly given up their use. In the former case the disease appears to be the result of excess, in the latter of a want of the customary stimulus. It is a common custom for persons in this country, particularly in the lower classes of life, to take a periodic fit of drinking, or, as they phrase it, to be *on* for drinking. They continue for perhaps a fortnight in a state of constant intoxication, and get delirium tremens from excessive stimulation. Another cause is this; a person who is in the habit of taking a great quantity of whiskey-punch every day happens to meet with an accident; he gets, suppose, a broken leg, he is debarred from the use of his usual stimulus, and the consequence is delirium tremens. Now when a person happens to have an attack of this kind, from a deficiency of his customary stimulus, the exhibition of wine, brandy, or whiskey is certainly productive of benefit; but when it arises from excess are we to continue the use of stimulants? Certainly not. In a case of the former kind we derive very great advantage from the use of stimulants. We cure our patients principally by means of opium, brandy, and wine, but I must confess, on the other hand, that I have never seen a case of excessive stimulation benefited by such a plan of treatment, nay, more, I have seen many patients, who have been treated in this way, die with symptoms of inflammation of the brain, or stomach, *and have found the diagnosis afterwards verified by dissection.* In all cases where delirium tremens has been the result of excessive stimulation, we have found in this hospital, that the most decided advantage has resulted from an opposite mode of treatment, and that we were able to effect a cure by keeping our patients on a strict antiphlogistic diet, and applying leeches to the epigastrium, followed by an opiate. You are aware, that Broussais first announced the doctrine, that delirium tremens was only an acute gastritis. This I believe is not true; but in a great many instances I believe there is a great deal of gastric irritation, and that much good may be done by relieving it. In some cases, which

have been treated in this hospital, *we have succeeded in (immediately) bringing on sleep in removing the tremors and mental aberration, in fact, in restoring the patient to a state of health by the application of leeches to the epigastrium, without any other treatment.* If a patient be in a state of excessive stimulation, you can easily conceive what organs are most likely to be affected, and you can pathologically explain the injury done by the use of stimulants. The rule I have laid down for myself is this; where the disease proceeds from a deficiency of stimulus, give wine, brandy, opium, &c., but where the stimulation has been excessive, apply leeches to the epigastrium and head, and if the disease still continues then you may have recourse to the opiate treatment.—*Ibid.*

19. *On the Efficacy of Dry Cupping in Various Diseases.* By R. J. GRAVES, M. D. Extract from a clinical lecture at the Meath Hospital.—I begin this day's lecture with some observations on dry-cupping, of which you have witnessed the trial in two or three cases at present in hospital. Most of you, I presume, are aware that dry-cupping has been lately recommended to the notice of the profession in a very ingenious and valuable paper published by Mr. Robertson of London; and, as it is a subject deserving of serious and interesting investigation, involving many considerations of practical importance, it will be necessary to notice it briefly, and offer some hints respecting its applicability to various forms of disease.

Dry-cupping is a remedy not by any means of modern invention; it was known to Hippocrates and Aretæus; and, in succeeding times, among the nations of the European continent and in the British dominions it was very generally employed, and formerly enjoyed the reputation of being a very fashionable remedy. Of late, it has fallen very much into disrepute; it is now very seldom employed, though some persons still use it, in hospitals and public institutions, where clinical experiments are conducted on an extensive scale. Mr. Robertson has attempted to revive this practice, and has proved that dry-cupping is a very valuable remedy, possessed of curative powers shared by no other therapeutic agent, and capable of being applied with advantage where the ordinary means are perilous or inadmissible.

Some time ago, Mr. King, of Stephen's Green, related to me the particulars of a case which exhibited, in a very remarkable manner, the benefit derived from dry-cupping. It was a case of hysterical vomiting, in a lady, for which every known remedy had been tried without any favourable result, and which was completely arrested by the application of dry-cupping to the stomach and margins of the ribs. This may appear strange to you, and you may be inclined to ask, how it is that a change in the condition of the integuments of the abdomen can affect the stomach? In reply to this I would ask, in inflammation of the stomach, whether acute or chronic, why is it that the application of leeches to the integuments relieves the gastric affection? In the latter, the result is equally strange as in the former instance; the circulation of the stomach is totally distinct from that of the integuments, and yet we have no remedy so efficient in relieving gastric inflammation as leeches, applied to the integuments of the epigastrium. Taking away blood from the surface produces a change in the circulation of the internal organs; detaining blood in the integuments in the neighbourhood of any viscus, acts also on the internal circulation, and effects a corresponding change. Let us investigate this more minutely.

A cupping-glass is applied to some part of the body, and the air contained within it is exhausted by means of a syringe or by heat. In either case the integuments of the part are forced up into the glass by atmospheric pressure, so as to form a hillock, in which a considerable quantity of blood is detained, remaining in the capillaries of the part, and being, as it were, cut off from the general mass of the circulation. The experiments of Dr. Barry have proved the detention of blood in that portion of the integuments submitted to the action of the cupping-glass, and that the quantity so detained does not pass into the general circulation or partake in its changes. Now, if a given portion of

skin has, in consequence of morbid action, an unusual quantity of blood thrown into it, and cupping-glasses are applied to the integuments in its vicinity, you draw off a great quantity of blood into the portion which you cup, and that part which presented an unusual quantity, in consequence of morbid engorgement, may be, *pro tempore*, drained, and may, during the period of this application, make rapid progress towards health. The same observation holds good when you cup over an internal organ in a state of inflammation. You must be aware of the practice of tying arteries which go to tumours of various kinds, and that the application of the ligature has frequently proved successful in arresting the peculiar inflammatory process by which such morbid developments are accompanied. Now, cupping acts as a kind of temporary ligature on the vessels of the part to which the glass is applied, including even the capillaries; and it is in this way that it tends to prevent the absorption of poisons locally applied.

Having said so much about the application of cupping-glasses, their *modus operandi*, and their action as local applications, let us see how far the principle may be pushed, and also whether this mode may not be applicable to local affections alone, but also act on the general circulation in such a manner as to produce those effects which are commonly attained by different means. Dr. Arnott, in vol. i. p. 574, of his work on the "Elements of Physics," makes the following important observations on this subject:—"Reflection upon these circumstances led me to think that, in certain cases, the beneficial effects of blood-letting might be attainable by the simple means of extensive dry-cupping; that is to say, by diminishing the atmospherical pressure on a considerable part of the body, on the principle of the cupping-glass used very gently, and thus suddenly removing for a time, from about the heart, a quantity of blood, sufficient, by its absence, to produce faintness. The results of trial have been such as to give great interest to the inquiry; and the author's leisure will be devoted to the prosecution of it. An air-tight case of copper, or tin plate, being put upon a limb, and made air-tight by a leathern or other suitable collar, tied at the same time round its mouth and the limb—on part of the air being then extracted by a suitable syringe, in an instant the vessels all over the limb become gently distended with blood; and, as the blood is suddenly taken from the centre of the body, faintness is produced, just as by bleeding from a vein. The excess of blood may be detained in the limb as long as desired, for the circulation is not impeded. To produce a powerful effect with a slight diminution of pressure, more than one limb must be operated on at the same time." From this it appears, that if you take the whole arm or leg or thigh of a man and place it under this machine, then exhaust it of air, and detain one or two pounds of blood in the integuments, the same quantity is abstracted from the heart and general circulation, and the effect produced is the same as if you had suddenly drawn blood from the system to this amount. The strongest man will faint if you cup both legs. I think this view of the subject opens new ground in the field of practical medicine. You are all well aware of the effects, the truly beneficial and admirable effects of blood-letting, and you know also, that these depend not so much on the quantity of blood lost as on the impression produced on the general system. If we have to deal with an extensive and violent inflammation, we do not abstract blood by a minute opening, we make a large orifice, or we open a vein in both arms at the same time, we place the patient in an erect posture and endeavour to produce deliquium. It sometimes happens that the patient faints from fear, or before any considerable quantity of blood has been lost, and this faintness, as Dr. Arnott remarks, answers as well as that which results from venesection. This I can also testify, for I have seen all the good effects of bleeding, produced by the terror with which the operation frequently inspires persons of delicate or nervous temperaments. Now, by the machinery before described, a machinery by no means complicated, you are able to produce with certainty, such a powerful effect on the general vascular system, as to obtain all the benefit derivable from general blood-letting. Dr. Arnott mentions another but more objectionable way of attaining the same purpose,

and one which is inferior in efficiency to the mode detailed. If you apply a bandage pretty tightly over the upper part of a limb, suppose for instance round the thighs, so as to prevent the return of blood through the veins, and then put the legs into warm water, the quantity of blood detained in the lower extremities will be such as to make the patient faint. This mode may be useful on some occasions but it is inferior to dry-cupping, and can only be applied to the extremities. There is another and very important point relative to the employment of dry-cupping, which stamps additional value on it from its applicability to cases calculated to excite much solicitude and anxiety in the mind of every practitioner. You have often seen cases of inflammation, in which our sole hope of safety, or even life, depends on checking the inflammatory process, when we stand doubting or perplexed, balancing the possibly fatal effect of blood-letting on a sinking frame, with the slower but, perhaps, more certainly calculated close of an inflammation, which attacks some vital organ, and affects the very sources of existence. If, in such circumstances, we could produce results similar to those which accompany venesection, would it not be a very important desideratum? Now, the employment of dry-cupping holds out to us a fair prospect of attaining this end, of cutting short a menacing inflammation in that particular state of constitution where blood-letting is a perilous experiment, and regulating the errors of morbid action without having recourse to the customary shock of sanguineous depletion. I do not know any better or more valuable auxiliary in the practice of medicine than this, or one which is capable of greater extension and improvement. There is not a single practitioner who does not remember how often he has been forced to bleed when he knew that he was doing so at the risk of his patient's constitution and life; there is no one who has not, on such occasions, anxiously sought some other means of accomplishing the same purpose; and as this is promised by the employment of dry-cupping, I think this matter should become the subject of extensive clinical experiment, and that no time should be lost in proceeding to investigate the true properties of a remedy, which is likely to open a new era in medical practice. Cupping-glasses might be made of convenient shapes, for applying them along the inside or outside of the thigh or arm, and might be so large that, with the aid of a syringe, the intended effect could be produced in a few minutes. With regard to their operation in cases of local disease, I think we cannot extend their use too far. There are many cases of hysterical neuralgia, sometimes affecting the side, sometimes the spine, and other parts, which hitherto we have treated by bleeding, leeches, stupes, liniments, and blisters. Fomentations and liniments sometimes succeed in removing this affection, so do leeches, but frequently both fail, and we are obliged to blister, which often produces great irritation, without being attended by any decided benefit. Here it is very probable, that we would derive very great advantage from dry-cupping in the neighbourhood of the affected part. There is one form of this disease to which it is peculiarly applicable. The most annoying thing, perhaps, about which a medical man is consulted, are the head-aches of young ladies. These are varied and numerous beyond conception, generally connected with some menstrual irregularity and derangement of the intestinal canal, and forming a class of disorders which would require a good monograph more than any other I know of. Many practitioners get into disgrace with ladies on this account, and, as a natural consequence, with the community in general. Bleeding here is of very little use, and gives only a temporary relief, or even in many cases aggravates the existing symptoms. The best plan of treatment is to regulate the menstrual secretion, and attend to the state of the bowels. But I will say no more on this subject, for I might lecture on it without end. As to the head-ache, if you leech they get worse afterwards, if you apply cold lotions the same result; the best thing you can do, in my opinion, is to apply dry cupping-glasses to the back of the neck and between the shoulders.* Let us see what

* Dr. Graves has expressed his opinions on this subject more fully in a paper which will appear in the forthcoming number of the Dublin Medical Journal.

has dry-cupping done in those cases which have been treated with it in hospital. A man of the name of Ryan, who has been a long time in hospital, suffering from violent pains, produced partly by rheumatism and partly by neuralgia, complained of very severe attacks of pain in the lumbar region, lower part of the belly, and thighs, but particularly in the lumbar region, on one side of which the pain and tenderness was excessive. This man had been mercurialized and blistered, he had 100 leeches to the affected parts in eight different applications, he had been stuped repeatedly, he had all manner of liniments and internal remedies I could devise. He was certainly somewhat improved by this treatment, but not so much as I wished. Well, this man has received the most marked benefit and relief of his sufferings from dry-cupping over the seat of the disease.

Another man, named Eustace, who had sciatica, which was cured by acupuncture and afterwards returned, experienced considerable advantage from this remedy. In the case of a woman above in the fever ward, labouring under bronchitis, we have observed an amelioration of the pectoral symptoms after the application of dry-cupping. It appears to me that cases of pain and tenderness are not the only ones to which dry-cupping is applicable, but that we may employ it also with hopes of success in congestion of internal organs. Cupping over the chest, I think would diminish if not cut short the paroxysms of spasmodic asthma, of tussis senilis, and of the acute suffocative catarrh. In bronchitis with emphysema, it would relieve the congestions of the lungs, and lessen the dyspnœa; and in the violent suffocating bronchitis of children soon after birth, it seems to be particularly valuable from its rapid effects. In the tremendous and fatal dyspnœa which accompanies this affection in children, bleeding and leeches are objectionable, from the danger attendant on them, and from their tedious operation, and are decidedly inferior to the prompt and efficacious agency of dry-cupping, which is free from any danger. You will be convinced that I do not overrate the value and advantages of dry-cupping, when you recollect the case of a man in the hospital who has empyema of the left side of the chest. In this case, which will be spoken of by my colleague, Dr. Stokes, the whole of the cavity of the left pleura is filled with matter; the heart has been pushed to the right side, and the man breathes only through his right lung. Now this man got bronchitis in his only sound lung, and you can easily perceive what danger he was in. It is obvious, that in such cases, from the long duration of the disease, the immense quantity of pus in the pleural sac, and the weakness of the patient's constitution, bleeding could not be employed without much hazard. We had recourse to small doses of tartar emetic and extensive dry-cupping over the chest. The result of this case, which I could not have treated so advantageously a fortnight ago, is very encouraging, for you have seen the relief this poor man obtained. It may seem to you that I am disposed to think too highly of a remedy, the properties of which are at present but little known; but, as I have stated to you before, its properties seem to be analogous to those of general and local bleeding, and it is of the utmost importance to investigate its effects thoroughly, and see if it is capable of the same application, and likely to be attended by similar results, or, if there be any differences in applicability, to know where the one and where the other may be employed with the greatest propriety and success.—*Lond. Med. and Surg. Journ. April 27th, 1833.*

20. *Severe Case of Hydrocephalus terminating in Recovery.*—An interesting case of this is recorded by Dr. TRAILL, in the first volume of the *Provincial Medical Transactions*. The subject of the case was a child, twenty months old, who became the patient of Mr. Reay, on the 24th of April, 1830, labouring under a slight remittent febrile attack, with some cough and occasional fits of screaming. Mercurial purgatives were given, but squinting supervened, and on May 14th, Dr. Traill was called in. The child was now very hot, with a rapid pulse; the alvine discharges ill digested and extremely offensive; the abdomen, though not tumid, felt *doughy* or inelastic; the tongue was furred; there

was no marked impatience of light, the pupils regularly contracted, but the child occasionally screamed, without apparent cause, and the urine was scanty. "He had cut all the incisors, the canine teeth, and four of the first molares; smart doses of calomel and jalap, with a mixture containing squill, were prescribed, while the head was ordered to be kept cool by an evaporating lotion. At 1 A. M. of the 16th, the child had a severe convulsive fit. *Gums divided over the molares—enemata—leeches to the temples—warm bath—castor oil.* On the 17th, more symptoms of cerebral affection—impatience of light; frequent screaming; convulsive twitches of the limbs—*leeches, blister between the shoulders, evaporating lotion to the head, calomel and jalap in repeated doses.* The blister was dressed with the ung. hyd. On the 19th there was strong strabismus; pupils much dilated, and nearly insensible to light. Yesterday and to-day all the other bad symptoms were increased; screaming more frequent; left side seemed paralytic, while the limbs on the right side were frequently and convulsively agitated. *Hyd. c. cret. thrice daily.* On the 21st the blister was repeated and castor oil given. On the 22d, the pulse which had previously been generally rapid, was now between 70 and 80. *Cold applications to the head omitted.* On the 23d the urine was nearly suppressed, the eyes insensible to light. *Calomel and jalap—nitre whey.* On the 24th, moaning and screaming, urine very scanty, one side, (not stated which,) quite paralytic, the other constantly affected with convulsive twitches. *Blister with ung. hyd. repeated—castor oil, and enemata.* On the 25th, the child began to be under the influence of mercury, and the blistered surface was highly inflamed; convulsive motions less violent. From this time he continued slowly to improve. On the 1st of June, strabismus still continuing, the eyes appearing to be yet insensible to light, and the pulse being below 70, rather irregular, diuretics were continued, and a small blister was applied to the vertex, over the fontanelle. On the 4th, the urinary secretion was copious and the strabismus diminished. On the 5th the blister was repeated. Soon after the 11th of July he was in vigorous health, and he remains free from complaint.

It is interesting to trace the successive phases of this affection—first, derangement of the bowels, pyrexia, slight affection of the thoracic organs, marked by cough: and of the head, evidenced by screaming—secondly, the head more decidedly affected, marked by increase of fever, a tendency to squinting, occasional screaming; probably inflammatory action of the arachnoid or substance of the brain was now going on—thirdly, increase of cephalic affection, shown by convulsions and convulsive twitchings of the limbs, impatience of light, more frequent screaming; probably effusion was now commencing, and the vessels were much loaded, for convulsions, after injuries of the head, are generally found to depend on moderate pressure—fourthly, symptoms of decided pressure, evinced by the subsidence of the pyrexia and the paralysis. He who carefully considers cases in this manner—who groups the symptoms, and calculates not merely what the name of the disease is, but what are the particular functional conditions or organic changes producing those groups, will be the philosophical and successful practitioner."

We particularly recommend to our readers the following remarks of Mr. Traill; we have ourselves so invariably seen the worst effects follow severe blistering to the scalp in hydrocephalus, that we can scarcely think of the practice without horror. "In the treatment of such cases, I have, for several years, discontinued the application of severe blistering to the scalp, which was once a very general practice; from having observed little benefit from that mode of treatment, and having, in some cases, thought that it tended to aggravate the symptoms. I have, of late, applied the blisters more frequently to the nape of the neck, under the impression that the inflammatory state of the brain was more certainly combated by deriving the fluids *from the head*, than by increasing the activity of the vessels of the scalp; while the application of cooling lotions, at the nearest possible point to the seat of the inflammation, has appeared to me a more successful method of treating this very fatal disease. With this mode of local treatment, I have long been in the habit of conjoining the ab-

straction of blood, either by leeches or the lancet, according to the age and strength of the patient; and, as the influence of mercurials in controlling inflammation, and in promoting absorption, appears to me well established, I usually endeavour to induce a constitutional effect, in such cases, as speedily as possible, both by giving it internally, and applying it as a dressing to the vesicated surfaces. Indeed, I believe that mercury will, in this disease in particular, enter the system much more readily by cutaneous absorption than by the lacteals. As pressure on the brain would seem more quickly to paralyze activity of the absorbents of the alimentary canal than of the *dermoid* surface, probably because of the immediate dependence of the former on the great sympathetic nerve. In the case about to be given, these were the indications which were chiefly followed."

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21. *Inflation as a Remedy for Obstructed Bowels.* By JOHN KING, Jr. Esq.—The importance of inflation as a remedy for obstruction of the bowels, appears to me not to be sufficiently appreciated at the present day. It was first recommended by Hippocrates for the removal of intestinal obstruction; in more modern times, it has been resorted to by Hoffman and Haller; and notwithstanding the neglect it has since experienced, I cannot but regard it as worthy of an eminent position in the list of therapeutic agents. The treatment usually prescribed in cases of ileus or colica (without inflammation) is very discordant, as witness,—warm baths, fomentations, injections of warm water and oil, rubefacients, and blisters,—contra—cold effusion and immersion, freezing lotions, pounded ice and snow; not to mention emetics, purgatives, and mechanical distention by warm fluids, quicksilver, gold and silver balls, &c.—and when all these remedies have failed, blood-letting, tobacco, in infusion and smoke, and lastly, gastrotomy. Yet this simple means of inflation, although probably the most powerful, and the least dangerous, is entirely overlooked. It paralyzes, as it were, the constricted fibre of the bowels, and may be used in the following cases, if not with complete success, at least with advantage, viz. the various kinds of colic, proceeding from torpidity, spasmodic constriction, viscid meconium in new-born infants, impaction, bezoards, and other intestinal concretions, volvulus or intus-susceptio, and some cases of hernia. It was a happy thought of those who hit upon this means in the hour of danger, after all their other efforts had proved nugatory. For although tobacco, which is often used as a last resort, sometimes is successful, it is not uniformly so, and it too often happens, that the patient, rather than undergo a repetition of it, beseeches to be allowed "to die in peace." We may also observe the hesitation with which the practitioner has recourse to it, not only because of its doubtful efficacy, but on account of the danger there is of greater exhaustion being produced by it. I take the liberty of giving one case, as I conceive it may give some idea of the power of inflation.

In September, 1829, I was requested to visit Mrs. G. æt. 26, of rather delicate frame. On the night previous to my visit, she experienced an uneasy sensation in the region of the stomach; for which, she took eight grains of calomel combined with a half-drachm of compound powder of jalap, without any impression on the bowels. During the night this uneasiness increased to an almost intolerable pain, accompanied with obstinate vomiting, which continued till the evening, when I saw her. In the course of the day she took two doses of castor oil, and received five injections. When I entered the apartment, she was sitting near the fire, and her body bent forward; the face was wan, hollow, dejected, and of a dingy-yellow colour; the surface of body and extremities inclining to cold. Pulse 80, soft and much compressed—tongue, at the back part, covered with a brownish-coloured mucus—she had obtained no alvine solution for six days. She took no notice of my being present, or of any thing going on around her, but informed me, when questioned as to the seat and kind of pain, that it was of "a violent screwing nature, working between the stomach and navel," coming on in paroxysms, and ending in or producing vomiting. I ordered the

warm bath, and gave a teaspoonful of laudanum with compound spirit of lavender, which was soon afterwards vomited. Upon this, an effervescing mixture was given, then five drops of croton oil with some laudanum, and in about three-quarters of an hour, five drops more without laudanum: but each in its turn was rejected, with a quantity of yellow-coloured fluid. It was at this time, I first thought of inflation. For this purpose, I procured a pair of common bellows, and securing the bladder of a glyster-bag to the nozzle of the bellows, the pipe was introduced into the rectum, while the patient lay on her right side, and the bellows was commenced being wrought. As soon as the air entered the rectum, the effect was immediate and satisfactory; the countenance lost its anxiety, the eye brightened, and the patient said she felt quite relieved. A gurgling noise was heard in the bowel, with an escape of fœtid air; and in about a minute from the time the air began to enter the rectum, she requested to be allowed to go to stool. She had a copious dejection, and a good night's rest; and next morning complained only of being much enfeebled, but was otherwise well.

I was deeply impressed, about five years ago, with the fatal result of a case of intus-susceptio, in a fine robust infant, six months old; which was supposed to proceed from the effects of half a teaspoonful of some syrup of poppy, made, as is commonly done, with opium, given for the purpose of procuring sleep during the period of teething. About eight hours after it was given, the child began to cry vehemently, having appeared restless and uneasy for several hours previously. Early in the forenoon, it passed a very scanty stool, streaked with blood; soon after this, vomiting commenced, which continued until the little sufferer sunk. Is it unreasonable to imagine that if inflation had been used in this case, the result would have been otherwise? I was hereby shown the necessity of seeking more powerful means, than fluid injections, et cetera. And I hope, as I firmly believe, that inflation with common air is the necessary desideratum. I conclude with Dr. Cheyne, that 'a man dying of ileus, presents one of the most pitiable sights in nature;' and a leading object of this paper is to remove a part of the horrors of the scene, by withholding many of the bitter doses, which are forced upon him by the solicitude of his friends, and the officiousness of his physician."—*Glasgow Med. Journ. February, 1831.*

22. *Efficacy of Iodine in Dropsy.*—Dr. WILLIAM STOKES, in a Clinical Lecture delivered at the Meath Hospital some time since, offered some remarks relative to a young woman affected with dropsy, which we transfer to our pages from our esteemed cotemporary, the *London Medical and Surgical Journal*.

This case, Dr. S. observed, illustrates well the truth of the proposition, that dropsy is not to be generally considered a disease *sui generis*, but as the result of some other disease, and that in order to effect its cure, we must carefully investigate its nature and ascertain its cause. The mere symptomatologist endeavours to remove it by the ordinary means, but we must accurately explore its cause, before we can hope to treat it with success. The history of this young woman's case is, that she had, some time since, an attack of acute peritonitis, that on the subsidence of this she had diarrhœa, and again symptoms of subacute inflammation of the peritoneum. She also had an attack of bronchitis, and afterwards became anæsarçous with enlargement of the belly. Here, gentlemen, we have here in the first place inflammation of the serous membrane of the digestive tube, then of its mucous coat, and afterwards of the membrane lining the respiratory apparatus. Considering the origin of the complaint as consisting in a subacute peritonitis, we determined to treat it accordingly; she was bled, leeches, and blistered, and then we had recourse to iodine. We are rubbing with iodine ointment, and she is taking internally one grain of iodine and eight grains of the hydriodate of potash daily, dissolved in two pints of distilled water. This solution, called the iodine mineral water, is an excellent remedy, and under its use you have seen that the size of the abdomen has been very much reduced, and the patient materially improved. In cases of this kind I have witnessed numerous instances of the value and efficacy of iodine, and can

recommend it strongly. A medical gentleman related to me some time back the particulars of a remarkable case of the wife of a respectable person who had ovarian dropsy to such an extent that her life was despaired of. Her belly was so enormously swelled, that at first sight he thought she had pillows over it. As he was called in, he, of course, wished to do something, and having recommended the employment of iodine mineral water, went away, leaving, as he thought, the woman to her fate. Some weeks after this, her husband called on him to express his thanks for the relief he had afforded her, and stated that she was amazingly improved. He had forgotten the case, and wished to see her again. He found her up and dressed, the abdomen quite soft and compressible; there were, as well as he could ascertain, some floating tumours in it, but the enormous dropsical swelling had almost completely subsided. It appeared that some short time after she began to use the iodine, a copious diuresis came on, and since that time she has been in the enjoyment of very tolerable health, and though while she has those tumours her life is insecure, still no one, I think, will deny that existence has been prolonged and much good effected. It is my intention to give iodine a full and fair trial, and to ascertain its comparative value in the treatment of dropsy. There is a patient at present in the male ward, who has enlarged liver and spleen with ascites; he is using the iodine mineral water, but as yet has received but very little benefit. We shall however continue its exhibition, for it is frequently necessary to persist in the use of this remedy for a considerable time, and never give it up in despair until thoroughly convinced of its inefficacy.

OPHTHALMOLOGY.

23. *Restoration of Vision, in Cases of Staphyloma and Incurable Opacity of the Cornea.*—Mr. NIMMO has written an able paper on this subject in our Glasgow contemporary. His object is, to point out the means that have been recommended by German surgeons, and to weigh their comparative merits. We will glance at the operations, which are three in number. The first consists in a removal of a portion of the iris, adherent to the posterior surface of the cornea, in staphyloma;—the second, in the formation of an artificial pupil in the sclerotic;—the third, in the removal of the opaque cornea, and in substituting for it a pellucid cornea, transplanted from one of the lower animals.

Dr. Ammon, of Dresden, was led by considerations, to which we need not particularly allude, to propose the first operation in cases of staphyloma. By means of a hook, introduced into the eye through an opening made in a part of the cornea or sclerotic, at some distance from the most transparent part of the cornea, he proposed to separate more or less of the iris from the cornea, and thus enable the patient to distinguish the light more readily, if not to see. He tried this experiment in one case only, which proved unsuccessful, from chronic inflammation arising, and rendering the part more opaque than before. Mr. Nimmo mentions another case in which the operation has been tried, with indifferent success.

“To this limited experience, I am able to add but one case, which gives little encouragement to a repetition of such attempts. Archibald Gilchrist, nineteen years of age, was admitted a patient at the Eye-Infirmity, on the 12th November, 1832. He stated that he had suffered from small-pox about seven years ago, since which period vision has been totally extinct, a perception of light and shade alone remaining. The right eye was found to be totally destroyed, while the cornea of the left was in a staphylomatous condition. The cornea was white and opaque over three-fourths of its surface, a small portion, towards the upper and nasal edge retaining a partial transparency, so that the iris was seen in contact with and apparently adhering to its posterior surface. This case was one which might have been pronounced decidedly hopeless, but

it was determined to give the patient a chance of recovering a certain degree of vision, by removing as much as possible of the iris from behind the most transparent part of the cornea. A small incision was made through the lower part of the cornea, through which a hook was introduced, and an attempt was made to lacerate and remove the portion of iris already alluded to. It was found to be firmly adherent to the cornea, and it was not easy to say how much was separated, as some blood was effused and obstructed the view. The operation was not followed by any bad consequence; the wound in the cornea healed rapidly, and only slight pain was complained of for a day or two. In order to promote the absorption of the lacerated portions of iris, the tincture of iodine was given to the extent of thirty drops daily; and after the irritability which followed the operation had subsided completely, the solution of nitrate of silver was dropped on the eye once a day, in order to render the cornea, if possible, somewhat more clear. After a short time the patient left the hospital. The place where the iris had been lacerated was still opaque, and presented a dark mottled aspect. No improvement in *vision* had resulted, but the patient thought that his perception of light was somewhat increased. He was directed to continue the remedies for some time, and it is possible that some further improvement may take place."

This operation, unsuccessful as it has proved in these instances, is inapplicable to conical and racemose staphyloma, so that we need not expect much from it.

The second means—excision of a portion of the sclerotica, was originally suggested by the elder Autenrieth, who performed it on cats with much apparent success. We say apparent; for, as he killed the animals on the fourteenth day, a circumstance which has since been found to prevent the success of the operation, it could not be observed in that brief period. The first operation on the human subject was by Dr. J. B. Müller, at that time surgeon to the Ophthalmic Hospital of Reusberg. The patient was a soldier, who, in consequence of the Egyptian ophthalmia had the left cornea staphylomatous, and the right entirely leucomatous. The operation proved unsuccessful, a white opaque membrane gradually forming in the wound, and the patient becoming as blind as before. The experiment has been repeated by Beer, Himly, and Mr. Guthrie, without success. Dr. Ammon has made several attempts to restore vision in this manner, and Mr. Nimmo has extracted three cases from that author's work. We will give the first and the third, as samples of the difficulties and the results.

"CASE 1.—On the 18th September, 1829, Dr. A. made his first attempt at the formation of an artificial pupil in the sclerotic, in presence of Dr. Martini, of Lubeck, Dr. Dieffenbach, of Berlin, and Doctors Hedenus and Hille of Dresden. The patient was a boy, 13 years of age, who had lost his sight soon after birth from ophthalmia neonatorum. The cornea of the right eye was staphylomatous, that of the left was rendered opaque by general leucoma, almost depriving him of even the perception of light. As there was a possibility of doing the patient good, and none of rendering his condition worse, it was determined to form an artificial pupil in the sclerotic of the left eye. The upper eyelid being raised by an assistant, and the eyeball being fixed by introducing a small hook through the conjunctiva close to the edge of the cornea, a semicircular incision was made with a cataract knife through the conjunctiva, near the temporal side of the cornea. The flap was dissected back with the curved scissors, and the bleeding, which was considerable, was suppressed by the frequent application of cold water. The flap of conjunctiva being held back by the assistant with a fine pair of forceps, Dr. Ammon now took a narrow-bladed knife, which he calls a *sclerotome*, and thrusting it through the sclerotic close to the base of the flap, carried it outwards to the distance of four or five lines, and then turned it downwards so as to form a flap. At this moment the patient made violent struggles to get free, the eye escaped from the hook, the lens, with a considerable quantity of vitreous humour, escaped through the wound, and the eye-

ball collapsed. The flap of sclerotic which had been formed was now removed with the scissors, and was found to bring along with it a part of the choroid coat. The bleeding which followed was not profuse, but continued for a considerable time, and finally yielded to the cold applications which were employed for the purpose of preventing subsequent violent reaction. No inflammation followed this operation. In the course of the next day the eye had recovered from the collapse, and was again distended with the humours. The edges of the opening in the sclerotic were turned somewhat inwards, and the flap of the conjunctiva had shrunk up, so as to leave uncovered a considerable portion of the opening. Round the wound of the conjunctiva was considerable ecchymosis. On the fifth day after the operation, the edges of the wound of the sclerotic began to suppurate, and the opening assumed a longish and narrow form, instead of its former quadrangular shape. A fine silver probe was easily introduced into the wound; this communicated to the patient a disagreeable sensation, and its removal was followed by the escape of some clear fluid, followed by a few drops of blood. Before this took place, the patient remarked that he could distinguish some large body in front of him. He could also perceive the motions of a hand before him, but could not distinguish the form of it. The flap of the conjunctiva had shrunk entirely, and covered no portion of the opening. From this period the wound gradually contracted, a fine membrane, subsequently becoming white and opaque, filled it up, and in the course of a year, the following was the condition of the patient:—"The eyeball was on the whole somewhat smaller than formerly, particularly in its upper portion. The place where the operation of sclerotomy was performed, presented a longish cicatrix of an ordinary aspect, covered by the conjunctiva. There was no unusual vascularity on the site of the cicatrix or around it. The sensibility of the eye to light was neither increased nor diminished."

"CASE 3.—The patient was a young man, nineteen years of age, whose eyes were affected with conical staphyloma of the cornea, in consequence of an attack of puro-mucous ophthalmia in infancy. It is unnecessary to describe the steps of this operation, which was in almost every respect similar to the other. Immediately after the operation, the patient had a distinct perception of light; the bleeding was easily checked, and the flap of the conjunctiva was readily brought over the opening in the sclerotic. Cold applications were used, and neither inflammation of the eyeball nor of the eyelids followed. Next day a prolapsus of the vitreous humour was observed, which was clear and transparent. The flap of the conjunctiva had rolled back, and lay at the upper part of the opening. In a few days the surface of the prolapsed portion of the vitreous humour began to lose its transparency; it was covered by a thin, white membrane, to which minute vessels were seen to pass. This gradually became more and more opaque, and became continuous with the conjunctiva, while the humours from behind pressed it forwards, and gave it very much the appearance of a staphyloma of the choroid. The eye remains in this condition, and the patient expresses himself sensible of a considerable increase of perception of light and has frequently expressed a desire that a similar operation should be performed on the other eye." *

Few patients will be likely to submit to this operation, for the small chance of a modicum of vision which it offers. But it has been attempted to modify the operation, in order to obtain a transparent cicatrix in the sclerotica. Dr. Ammon has proposed to remove a portion of the sclerotica from behind, so that the conjunctiva shall never be opened at the site of the artificial pupil. This, he thinks, may be effected by a needle, with a cutting edge, introduced at some distance from the site of the intended opening in the sclerotic, care being taken to avoid cutting entirely out through the conjunctiva. So far as Mr. Nimmo knows, this operation has never been tried.

* "Another case, in which the operation was performed by Professor Ulmann of Marburg, is recorded in the second volume of Ammon's *Zeitschrift für die Ophthalmologie*, p. 123. The result was similar to that of Dr. A.'s cases."

Dr. Wutzer, professor of surgery in Bonn, has proposed another modification. He would make the opening in the sclerotic in the original way, then pare away a thin piece from the surface of the cornea at its most transparent portion, and leaving it attached by a single point, turn it round as in the operation of making an artificial nose, fit it to the opening in the sclerotica, and secure it in its place with a fine suture, in the hope of its adhering and remaining transparent. Mr. Nimmo is not aware of this having been tried, and the operation does not promise much.

The third operation which has been proposed for opaque cornea, is its removal and the transplantation of the transparent cornea of one of the inferior animals. It was suggested by Reisinger, has never been tried on man and has not succeeded in brutes. Dr. Dieffenbach, fearing that the transplanted cornea would not unite, offers a modification of the operation. He leaves the original cornea untouched in the first instance, makes an incision *round* it through the conjunctiva, fits into this the edge of the cornea of a pig, and secures it with a fine suture. Should adhesion take place, an incision is to be made through the artificial cornea, and a portion of the opaque cornea to be removed with the knife and scissors.

We need not be at the pains of discussing these suggestions. 'This joiner's work is not altogether adapted for the eyes of living persons.—*Med. Chirurg. Rev. July, 1833.*

24. *On Xeroma Conjunctivæ.* By WILLIAM MACKENZIE, Lecturer on the Eye in the University of Glasgow.—Agnes M'Kinnon, aged twenty-six, applied at the Glasgow Eye Infirmary, on the 26th of March, 1833, under the following circumstances:—

Both conjunctivæ are red, and have evidently suffered from long-continued inflammation. The right conjunctiva especially is of a dark-red colour, and, where it passes from the lower eyelid to the eyeball, of an olive hue, from the frequent use of nitras argenti in solution.

The left conjunctiva has the appearance as if it were skinned over, being in many places of a whitish colour, and, on the inside of the upper lid, looks as if it had suffered cicatrization. It is altogether drier than natural, and seems almost destitute of its proper mucous secretion. The patient says that this eye waters much less than the right. At the nasal extremity of the left lower lid, there is a tendency to symblepharon; the conjunctiva, when the patient turns the eye upwards and outwards, forming a frænum, which prevents the free motion of the eye. There is slight inversion of the left lids, with some inverted eyelashes rubbing on the surface of the eyeball. Numerous red vessels are observed winding over the left cornea.

She says that she has been subject to attacks of ophthalmia for eight years; the first attack being in the left eye, in consequence of a stroke with a shuttle. The conjunctivæ were never scarified, nor rubbed with solid caustic; and she never had any operation performed for the inverted state of lids, except pulling out of the faulty eyelashes. Tongue clean; bowels regular.

The inverted eyelashes were removed, and she was ordered to bathe the eyes thrice a day with a tepid solution of ten grains of murias ammoniæ and twenty of gum arabic, in eight ounces of water.

The above is an example of a very peculiar state of the conjunctiva, the result of long-continued and ill-treated inflammation of that membrane. It has been described by Mr. Travers, under the name of *cuticular conjunctiva*. He mentions,* that he had seen cases of this conversion of the conjunctiva into a rugous and opaque skin, go the length of knitting the lids close to the globe, and obliterating the sinus palpebralis. While he places it among the sequelæ of chronic inflammation of the conjunctiva, he considers it as immediately depending on an obliteration of the lachrymal ducts; a view of the subject which

* Synopsis of the Diseases of the Eye, p. 120. Lond. 1820.

had been taken long before by Schmidt, of Vienna,* who describes the disease under the name of *Xerophthalmos*.

The most recent, and hitherto the most complete, account of this diseased state of the conjunctiva, we owe to Dr. Ammon, of Dresden, one of the most original and ingenious ophthalmological inquirers of the present day.† He acknowledges, however, that the first case of the disease which he had an opportunity of examining, was pointed out to his attention by Professor Jäger, of Erlangen; who, in one of his Clinical Reports, had spoken of this affection of the eye under the name of *Ueberhäutung der Conjunctiva*.

The principal symptoms of *xeroma conjunctivæ* may be gathered from the case of M'Kinnon, as above related. I may add, however, a few remarks, embodying what seems most interesting in Dr. Ammon's paper.

1. *Symptoms*.—Although, in general, the conjunctiva presents a dark-red colour, and has a thickened, rugous, and dusky appearance, it is sometimes whiter and less vascular than natural. It is always drier than in the healthy state, and looks as if it were skinned over. The caruncula has a dry, smooth, flat appearance, is sometimes whiter than natural, and is often scarcely recognisable. The puncta are generally contracted, or closed; sometimes, however, dilated and paralysed. The cornea is dull and nebulous, with red vessels running through its conjunctiva. There is generally a considerable degree of entropium, with trichiasis, fræna approaching to symblepharon, and not unfrequently the conjunctiva is observed to fall into folds around, and especially above the cornea. If the conjunctiva is touched with the finger, it betrays scarcely any sensibility. When cold or warm water is dropped upon the eye, no sensation seems to be produced. The patient complains of a feeling of dryness, and sometimes of sandiness in the eye. If he tries to weep, no tears flow, but the effort makes the eye red and painful, while no such effect is produced on the sound eye.

2. *Causes*.—Long-continued inflammation of the conjunctiva always precedes xeroma; and in the course of that inflammation it seems indubitable, both from the aspect of the membrane and the other symptoms, that the secretory structure of the conjunctiva is altered, and its power of forming mucus thereby partially or entirely lost. The kind of inflammation most apt to lead to this change, in the conjunctiva, is the strumo-catarrhal; but it may also follow any chronic conjunctivitis—strumous, catarrhal, or contagious. Dr. Ammon suggests, that granular conjunctiva subsiding, is apt to leave the conjunctiva disposed to fall into xeroma. I am inclined to think, however, that the most frequent origin of this disorganized state of the conjunctiva is either a totally neglected strumo-catarrhal ophthalmia, or one treated only with stimulants—such as the golden ointment, the black ointment, and the like. Instead of abating the inflammation by proper soothing and emollient applications, and by the local detraction of blood, it has unfortunately become a too common practice to use only stimulants and escharotics, and some of these so strong that they actually destroy the mucous texture of the membrane to which they are applied; an effect which is followed, after some time, by the conversion of the conjunctiva into a mere cuticular covering. I have seen the mucous membrane of the tongue partially changed in the same way, so as to present numerous white, skinny, unalterable patches. Saturnine applications are probably, in many cases, the cause of xeroma; for if the least excoriation exists on the conjunctiva, the lead, precipitated by the muriatic acid which exists in the mucous and lachrymal secretions, instantly fixes on the excoriated spot, rendering it white and dry, and is very rarely removed. Hence liquor plumbi, Goulard water, and the like, are never used in good ophthalmic practice, however slight the affection of the eye. They are still, however, amongst the favourite applications of the vulgar.

Dr. Ammon, finding xeroma often attended by entropium, has come to the conclusion that the operation of removing a fold of skin, for the cure of the

* Krankheiten des Thranenorgens, p. 55, 1803.

† Zeitschrift für die Ophthalmologie, vol. i. p. 65. Dresden, 1830.

latter, may often be the cause of the former; the incision being made too deep, and the consequent inflammation extending to the lachrymal ducts. But it is a sufficient answer to this notion, that we meet with this disorganization of the conjunctiva in subjects who never have undergone any such operation, or even in some who have had no inversion of the lids. That the lachrymal ducts are sometimes closed in xeroma, I do not mean to deny; but may not the same chronic, mismanaged inflammation, or the same violent escharotic applications, which close forever the secreting pores of the conjunctiva, close also the mouths of the lachrymal ducts? Would mere closure of these ducts, with an otherwise healthy conjunctiva, give rise to xeroma. I believe not; and Dr. Ammon seems inclined to the same opinion. It is the mucus of the conjunctiva, and not the tears, which, under ordinary circumstances, keeps the eye moist and the cornea pellucid. The moisture of the eye and the clearness of the cornea are preserved even after the lachrymal gland is extirpated. But let the conjunctiva, (as in the disease now under consideration,) be deprived of its secreting faculty, not merely does the patient complain of a feeling of dryness in the eye, and move the eye with difficulty, but the membrane looks like the skin on the back of the hand, and the cornea, no longer guarded against the effects of air, dust, and light, becomes opaque.

Treatment.—Cold applications Dr. Ammon found hurtful in this disease. Tepid ones should be used; and let them bear some resemblance, in physical and chemical properties, to the secretion which the eye has lost, and for the recovery of which there is very little hope. If the conjunctiva be very red, local blood-letting will afford considerable relief. The general health is carefully to be attended to; not neglecting the trichiasis, entropium, and other local occasional attendants on this highly-interesting affection of the conjunctiva.—*Lond. Med. Gaz. May, 1833.*

SURGERY.

25. *Case of Croup in which Tracheotomy was performed with success.*—The question of the utility of tracheotomy as a last resource in croup, has been much debated by physicians; some few considering it as the only chance of saving or prolonging life in the last period of that dreadful malady, while the greater portion of practitioners regard it as absolutely injurious. The cases of success are certainly extremely few; so few, indeed, that the physician to the Hospital of the Enfants Malades, in his article "Croup," *Dict. of Medicine*, says that he is not acquainted with one authentic case of recovery after this operation in true croup. The following example will therefore be read with some interest; and the marked character of the symptoms leave no doubt that it was a case of genuine croup.

Case 1. Gustava Marcillet, six years of age, was seized on the 21st of November with fever and some pain in the throat; the cough was spasmodic, and the voice hoarse; during the nights of the 22d and 23d, the cough became more frequent, hoarse, and suffocating. These symptoms, with oppressed respiration, became aggravated on the 23d, when leeches and blisters were applied to the neck. At this period the infant was visited by Drs. Trousseau and Rue. It presented all the characters of croup in its third stage; the respiration was extremely anxious and oppressed; the dry gifflement of cramp was distinct; pulse rapid and nearly insensible; cough hoarse and frequent in the morning; in the day absent, through the weakness of the child; the skin was warm and covered with sweat, and the anxiety of countenance excessive. Towards evening, the fits of suffocation became more violent and frequent; the child seemed on the point of death; and as all the usual remedies had failed to arrest the disease, it was determined to have recourse to tracheotomy as a last hope; M. Trousseau was fortunately furnished with instruments on the spot, while the parents re-

moved themselves from the house to avoid seeing, as they imagined, the last gasp of their child.

The operation was simple, and conducted after the manner recommended by M. Bretonneau. An incision was first made from the angle of the thyroid cartilage to the sternum, a little inclining to the left side, in order to avoid the innominate. This incision gave an open wound of about two inches, and in the moment of inspiration, the space between the sterno-thyroid muscles was very strongly marked. The vessels and nerves on the right side of this space were pushed aside with the index and middle finger of the left hand, and the deep incision continued close by the side of the nails. At this time numerous thyroid veins were unavoidably divided, and gave a good deal of blood; this caused some embarrassment, when the point of the blade was close to the trachea, for on the one hand it was impossible to press the fingers more strongly on the trachea as a guide, for fear of compressing the air-tube, while on the other the blood completely obscured the trachea itself; thus it became necessary merely to touch with the knife gently the rings of the trachea each time it rose during inspiration; in this way one or two rings were exposed and opened near the lower edge of the wound. The division of the rings was then continued upwards as far as the cricoid cartilage; this part of the operation was completed in five or six seconds; the blood immediately penetrated into the trachea, and was rejected with great force; but the moment respiration was established through the wound, it ceased altogether.

The respiration now became less difficult, but extremely rapid; the child recovered the full use of his senses, and expressed himself as being better; however, the fits of coughing came on nearly every moment, when he spat up bloody mucus and bits of false membrane. As the cough became more calm, an attempt was made to introduce a canula into the trachea, but this was impossible, through the pain it caused, and the irritability of the child. An assistant was now left with the child to keep the wound if possible open, while M. Trousseau sought a canula of a different construction. On returning with an instrument which had already been used in two similar operations, M. Trousseau found the lips of the opening almost closed by mucosity and remnants of false membrane; however, the canula was introduced without difficulty, and immediately provoked a convulsive cough, followed by the expectoration of thick mucus and portions of membrane. When this coughing had somewhat ceased, fifteen to twenty drops of a saturated solution of alum were introduced into the trachea; the cough was thus reëxcited with great violence, and a quantity of false membrane spit up; after a short period, a solution of nitrate of silver (10 grains to ℥j. of distilled water) was injected into the trachea, and provoked the cough in a much less degree than could have been imagined; the expectoration of false membrane followed this injection also. Shortly after, the cough became calm, and the infant slept, with the respiration considerably improved. During the night, the patient's aunt was constantly employed in keeping the passage of the canula free, either by a little sponge, or by dropping an emollient fluid into the trachea.

24th. Eight hours after the operation, the countenance was good, the pulse developed, respiration 32, râle ronflant in the bronchi, and perfect resonance of the chest. The nitrate of silver was again dropped in, and the canula occasionally cleared.

25th. Solution of nitrate of silver (10 gr. in ℥ii. of water) was dropped into the trachea six times, each application being followed by violent coughing and expectoration of false membrane. Whenever, in spite of the injections, the respiration became embarrassed, the canula was withdrawn, and the wound left open, while the instrument was cleaned, a process which was frequently necessary in the course of the day and night. However, the edges of the wound became a little sore and irritable on the 26th, and the secretion from the trachea was transparent and spotted with blood, but these were the signs of pneumonia.

26th. Sixty hours after the operation the child slept peaceably during the

night; the instillation of the emollient fluid was continued, which always excited cough, but an expectoration of simple mucus instead of false membrane; the pulse is regular, and the respiration not embarrassed; thirty-six in the minute.

27th. Four days after the operation, the injection of nitrate of silver discontinued; respiration easy; the respiratory sound is heard nearly in the whole of the chest. During the day the child spoke a little in a low voice; the canula has been removed and cleaned; whenever the respiration becomes oppressed, the marsh-mallow water is injected into the trachea.

On the sixth day after the operation, the child coughed only four or five times; no expectoration: respiration not embarrassed; the child commences to speak a little. When the canula is closed purposely, the air passes readily through the glottis and nares. On the ninth day the canula was completely closed, and on the twelfth the child was able to respire entirely by the larynx; in consequence of which the wound was dressed with lint and plaster, and in the space of three days was completely healed. The child now enjoys the most perfect health.—*Lancet, from Journ. de Connaissan. Med. Chir. No. 1.*

26. *Dislocation of the Humerus backwards.*—M. SEDILLOT, Surgeon of the Hôpital de Val-de-Grace, communicated to the French Academy of Sciences in June last, a case of luxation of the humerus backwards into the fossa infra-spinata, which was reduced a year and fifteen days after the accident. Boyer mentions only one case of this accident. Dessault never saw any; indeed, it is so rare that its occurrence has been denied by some surgeons.

27. *On Abscesses of the Septum Narium.* By Mr. FLEMING.—“Abscess of the septum are then occasionally met with as the result of injury. As such they may be acute or chronic. They may also arise independent of that cause, in which case they appear frequently to be connected with some scrofulous disposition in the constitution, or with the presence of some of the exanthemata, as variola, measles, scarlatina. The nature of the injury to the nose likely to produce abscesses of the septum varies. I think, however, they occur often where there is an accompanying wound of the integuments, and where that wound is situated near the lower extremities of the nasal bones, with or without injury to them. It usually happens, that the abscess is fully formed, when the surgeon is applied to, or, (if he have had an opportunity of watching the case from the commencement,) that the exact situation of the inflammation escapes his observation, until it has advanced too far to prevent suppuration. In those abscesses, the integuments of the nose generally partake of the inflammation. Though not always discoloured, they are œdematous, and tender on pressure. The pituitary membrane is inflamed throughout, and that portion of it covering the septum is particularly turgid. Its natural secretion is also suppressed, and should any external wound be present, it looks angry and irritable. The constitution generally sympathises, and ordinary feverish excitement prevails. At an earlier or later period, matter is formed under the mucous membrane, occupying either or both sides, usually both; and in proportion to the extent of the effusion, there is a tumour, more or less prominent, in either or both nostrils, producing corresponding obstruction. The pain, as we might have anticipated, spreads along the mucous membrane to the frontal sinuses, and lachrymal passages; hence the lachrymation and uneasy sensations in these parts complained of by the patients. It likewise occasionally spreads downwards; hence tumefaction of the upper lip and lower margin of the septum. The appearance of these tumours is remarkable. They are smooth and shining, and of a bright red colour; very tender on pressure, and give a distinct sense of fluctuation. They are somewhat fixed, and do not appear influenced by the ordinary acts of respiration. Their connexion with the septum is by an extensive base, and in every case I have seen, there has been a communication between those on opposite sides.”

Case. A coachman, æt. 40, fell and struck his nose against the edge of the

curb-stone. A wound was produced. It was dressed, and, for eight or ten days nothing unusual occurred. The wound then became extremely painful, the pain extended to the neighbouring parts, the nostrils grew obstructed, and there was febrile disturbance. Mr. F. now saw the patient. The nose was enlarged from subcutaneous effusion, which implicated, with cutaneous redness, the eyelids, lower part of the forehead, and upper lip. There was much lachrymation, much pain on pressure, ulceration of the wound, exposing the nasal bones denuded, and a probe could be passed on either side of the septum for some distance upwards, backwards, or downwards. The nostrils were blocked up by two highly-vascular tumours, which projected considerably beyond their margin. These tumours were tense and polished on their surface, and so fully occupied the nostril, that they were almost fixed and unaffected by the ordinary act of respiration. By firmly compressing the nose at its lower part, a thin, sero-purulent fluid could be expressed through the ulcer; by having recourse to the same means of compression at the upper part, the tumours below were rendered more tense and projecting, and by alternate movement, no doubt could be entertained as to the existence of a fluid within them. The outer boundary of each was defined, and could be traced with a probe towards the median line, where the septum separated them. Mr. F. made an opening with a lancet into the tumour, in the right nostril, when a large quantity of a thin purulent fluid escaped, and both the tumours subsided, leaving the mucous membrane in loose sacculi, on each side of the septum. A dossil of lint was introduced into the opening, and ordinary local and general remedies directed. Great relief was experienced from the operation. Much difficulty was experienced in keeping the opening free, and six weeks elapsed before the wound was healed. Twelve months after the accident, Mr. Fleming met the patient and examined the nose. No exfoliation had taken place, but occasional uneasiness was felt in the cicatrix of the original wound. The central portion of the cartilaginous septum appeared to have been absorbed, and to have admitted of the adhesion of the opposite surfaces of the mucous membrane to each other. This had produced a change in the form of the nose, the dorsum having fallen in, in a slight degree, between the tip and the extremities of the nasal bones. No other peculiarities were to be observed.

“Abscesses of the septum are always to be looked on by the surgeon with anxiety. He ought to have recourse to every means in his power from the date of the injury to the nose, to prevent their formation, and when the slightest grounds exist for suspecting the presence of matter, he should not lose time in making an opening to evacuate it. This is the only chance the patient has of escaping a tedious disease, and ultimate deformity, from the bones or cartilage partaking of it. The thickened state of the mucous membrane is to be borne in recollection in puncturing those tumours, and in their future treatment. They should be rendered as tense as possible by firmly grasping the upper part of the nose, and in the subsequent visits the opening should be freed, as the fulness of the tumours may indicate the fresh accumulation of fluid. The discharge is generally of a thin, sero-purulent nature, and in the progress of the case I have remarked, that it assumes a glairy consistence. The mucous membrane is slow in recovering its healthy condition. It is, however, materially assisted by different lotions: in the inflammatory stage, those containing lead and zinc are grateful; in the chronic, the black and yellow mercurial washes, and the diluted citrine and zinc ointments, will be found beneficial. The general, local, or constitutional treatment does not require any particular comment.”

Mr. Fleming appears to consider as a peculiarity, the discharge assuming a glairy character in the progress of the case. This is observed in all abscesses. As the cavity contracts, and the cure is effected, the discharge invariably passes from the condition of purulent to glairy, and from that to serous.

Mr. Fleming has also seen instances of abscess arising spontaneously. They are seldom suspected by patient or practitioner, till fully formed. He has

never seen the outer parietes of the nose engaged in these abscesses. With the following quotation we will drop the subject.

“ Their appearance is natural, and unless deformity exist from the extent of the abscesses, we are obliged to examine the nares for their detection. Here the only peculiarities they possess different from the symptomatic or acute, are, that there is a less shade of redness in their colour, that they are less tense, and that they bear more pressure without pain. I think also, they are much more extensive, and more likely to occur singly on either side of the septum. I have met with the case of a countryman, where not only each cavity of the nostril was occupied by a tumour, but there was considerable protrusion of the upper lip, and on everting it, an abscess exactly resembling in appearance and situation a common gum-boil, was found at the root of the septum, which, on being opened, gave exit to a large quantity of thin, purulent fluid, and caused the subsidence of all the swellings. Again, I have had under my care a young lady, with an abscess about the size of a Spanish nut, occupying only one side of the septum, about an inch or an inch and a half from its anterior margin. The history of the first of these cases was most confused and unsatisfactory. The obstruction in the nose had been felt for an indefinite period beforehand, and with so little uneasiness or pain was it accompanied, that I really believe, were it not for the deformity, no application would have been made for relief. It had been considered in the neighbourhood of the character of polypus. Its termination I am not aware of, I am only satisfied of its nature. The account which the lady, who was the subject of the second case, gave of herself, was as follows: when travelling in England about a month before, without any previous uneasiness in the nose, she suddenly perceived a most disagreeable, noisome smell, which, at the moment, she was inclined to attribute to some accidental cause in her apartment, at the hotel at which she stopped. She could not, however, get rid of the sensation, and although it varied in its pungency, it was more or less constant. Under those circumstances she applied to me. In the examination of the nares, I could only observe the tumour I mention in connexion with the septum. It had a fistulous opening, through which oozed out a thin fluid, having the fetid odour complained of. Some time elapsed before it subsided. It ultimately, however, did subside, and was most benefited by the occasional injection of a strong solution of the nitrate of silver, and the administration of mild alteratives.”—*Dublin Journal of Med. and Chem. Sciences*, No. X.

28. *Fracture of a Rib produced by a Violent Fit of Coughing.*—An instance of this, the only one we believe on record, is related by Dr. GRAVES, in a late No. of the *Dublin Journ. of Med. and Chem. Sciences*. It occurred in a female, forty-seven years of age, tall, and unusually strong and muscular for her sex. During a violent fit of coughing, she was suddenly seized with a stitch in her left side, accompanied by the sensation of something having snapped or given way. The pain was so severe, and so much affected her breath, that she obtained professional advice next day; when leeches and afterwards a blister were applied, but without relief. Five days after the accident she came to Dublin, and applied to Dr. Graves. She was then unable to make a deep inspiration without extreme pain, and complained of great soreness and tenderness extending in every direction from central portions of the ninth and tenth ribs. When she made a very deep inspiration, the pain was felt in the situation of the left kidney, and also shot to the left shoulder. These symptoms, evidently differing from those produced by either common pleurisy or pleurodyne, puzzled Dr. G. not a little, and he desired the lady to remain in town, in order that he might make an examination of the affected parts when she was in bed. When this was done, he found that the central point of tenderness, and that from which the pain as it were radiated, was situated not between the ribs, but on one of them, either the ninth or tenth. It was evidently either at or very near the junction of the cartilaginous with the osseous portion of the rib.

Pressure made exactly over this spot could scarcely be tolerated, and immediately gave the idea that the bone yielded here, in fact, that it was broken. Dr. G. mentioned his suspicion, when she told him she had mentioned to her family immediately after the accident occurred that she was sure she had broken a rib, as the feeling was similar to what she had two years before experienced on breaking one of the bones of the fore-arm. She also observed that she was much easier during the day when her stays were on, than at night when she had unlaced and taken them off. On applying a compress and roller over the part she experienced immediate relief, and gradually recovered without any other remedy being used.

There was no evidence of unusual fragility of the bones observable in this lady. The fracture of the fore-arm had been occasioned by an accident attended by the application of a sudden and violent force to the bone, and she had recovered speedily with a well-ossified callus. With respect to the explanation of the fracture of a rib as an effect of coughing, it is to be recollected, that several of the abdominal muscles, which are called into action in forcible expirations and violent fits of coughing, arise from the margins of the inferior ribs; and to the agency of the unusually sudden and energetic action of some of them, we may, therefore, attribute the fracture of the rib. Altogether, the case is instructive, not merely for its singularity, but because it affords a useful lesson with regard to the extreme importance of making an accurate examination of every disease before we hazard an opinion concerning its nature.

29. *Parotid Tumour.—Extirpation.* By JAMES SYME, Esq.—Mary Dawson, aged twenty, was admitted on the 22d of June, on account of a tumour occupying the situation of the parotid gland. It was of the size and form of the half of a small orange; the surface was slightly botryoidal, and the consistence was firm. It could be moved a little upwards and downwards, but not forwards. It was not painful. The patient stated that she had first remarked the swelling about five years ago, when it was very small, and that of late it had increased much more rapidly than during the previous period.

The tumour was removed on the 26th, by making one long incision from above downwards, turning aside the integuments, and dissecting out the morbid growth from the substance of the parotid gland, in which it was imbedded. A process extended very deep behind the angle of the jaw; but by detaching the anterior edge of the tumour first, and reflecting it backwards, the operation was completed with little difficulty. Two pretty large arteries, and a considerable branch of the *portio dura*, were divided. The vessels were tied; and the edges of the wound having been brought together by a couple of stitches, a sponge was applied with moderate force to restrain the oozing of blood from the cut surface of the parotid. The patient was dismissed on the 9th of July quite well, without any unseemly trace of the operation, and with the slightest possible paralysis of the face, which could be perceived only when she smiled.

The tumour was found to possess a fibrous consistence, with small cells containing fluid interspersed,—a kind of morbid growth frequently met with in the neighbourhood of the parotid and mammary glands, the place of which, when allowed to grow large, it often occupies so completely as to appear an enlargement of the glands themselves.—*Edin. Med. and Surg. Journ. Oct. 1833.*

30. *Cancer of the Tongue.—Excision.* By JAMES SYME, Esq.—Elizabeth Low, aged forty-one, was admitted into the Surgical Hospital on the 20th of March, on account of a very formidable-looking ulcer of the tongue. It extended from the apex backwards along the right edge, terminating opposite the second molar tooth, and leaving free not more than a third part of the organ. The surface of the ulcer was extremely irregular, and its stool was very hard. She stated that the disease was first noticed some months before, and had latterly made very rapid progress. Her general health was pretty good, and no glan-

dular enlargement could be found on the most careful examination of the neck.

The operation was performed by seizing the ulcerated part with the fingers of the left hand, so as to keep it steady, and distinguish the confines of the disease, beyond which two or three successive strokes were then made with a pair of probe-pointed curved scissors. The two raninal arteries presenting themselves near the frenum were the only vessels that required to be tied; and the cut surface afforded but an inconsiderable oozing. About a fortnight afterwards, while the sore was healing favourably, an abscess formed in the neck, about midway between the jaw and clavicle. It was evacuated by free incisions, and soon healed. The patient was dismissed quite well on the 18th of April.

Malignant sores of the tongue are removed more advantageously by excision than the ligature. The latter method is extremely painful, and very uncertain, as the thread is apt to slip in the drawing of the knot, while the only objection that has been urged against excision, viz. the danger of hæmorrhage, must be admitted to be more theoretical than practical, since the only considerable arteries of the tongue lie near the forepart, where they are easily accessible, and since in point of fact excision has been very freely performed without any such bad consequence.

It was curious to observe in this case, that although so small a portion of the tongue remained, the patient retained the power of articulation nearly unimpaired. Similar facts were formerly supposed to afford evidence of reproduction of the tongue after partial destruction of it by violence or inflammation; but it is needless to impugn this opinion, as it has been already so completely refuted by Louis.*—*Ibid.*

31. *Medullary Tumour of the Bones of the Face, with Abscess of the Antrum.* By JAMES SYME, Esq.—William Anderson, aged sixty, was admitted on the 22d of June, on account of a large swelling of the left side of the face. It commenced immediately below the eye, which, from the distension of the lower lid, could hardly be opened, descended to the mouth, and pressed the nose towards the opposite side. There was a small opening a little below the margin of the orbit, which allowed a probe to enter downwards and backwards to the extent of at least two inches. A small quantity of matter issued from this orifice, and also from the left nostril, when the patient assumed the horizontal posture. On examining from the mouth, it was felt that the tumour commenced immediately above the alveolar processes, as if formed by expansion of the anterior wall of the antrum; that the left canine and lateral incisor teeth were loose; and that the left side of the palate yielded to pressure.

The patient's appearance was unhealthy, and his pulse was irregular. He stated that he had a discharge of matter from the left nostril for a good many months, but had first perceived the swelling of the face only twelve weeks previous to the time of admission. The opening in the cheek had taken place spontaneously about a month after the tumour appeared. He complained of a dull, aching pain in the affected part.

On the 24th, a free opening was made into the antrum, by cutting above the gum of the bicuspid tooth, which allowed a quantity of bloody pus to escape. Considerable diminution of the pain and swelling followed; but matter still issued from the sinus of the cheek, which was therefore dilated by incision downwards on the 28th. Passing my finger into the cavity, I ascertained that the swelling depended almost entirely upon expansion of the parietes of the antrum; that the lining membrane seemed to be not materially altered; and that it was only towards the orbit and nose that any solid enlargement could be found. In the course of this examination, the roots of the canine and lateral incisor teeth were felt projecting into the cavity, and pressure was made upon them so as to effect their removal. Poultices were applied to the face in the first instance

* Mem de l'Academ. de Chir. Tom. v.

after these operations, and then lotions of sulphate of zinc, with injections of warm water, into the cavity. A great improvement soon took place. The cheek regained a natural appearance, the nose became straight, and the eye was no longer closed. Notwithstanding this improvement, which led the patient to think himself on the point of getting quite well, the case retained a very unpromising aspect, as the upper part of the left nostril was occupied by a soft polypous growth from the bone, and a swelling still existed at the inner angle of the eye, which seemed to depend on a similar morbid formation. As any attempt to eradicate the disease would in these circumstances have been absurd, it was resolved to do nothing more, and send the patient home with the relief that he had obtained.

On the evening of the 5th of June, he had a rigor, which continued during the night. In the morning, he had an emetic, followed by a dose of calomel and antimonial powder. In the course of the succeeding night his breathing became very difficult, and attended with a very loud mucous rattle. He continued quite sensible, but made no complaint of pain. He died next day at 2 P. M.

On dissection, the inferior margin of the orbit and the left wall of the nasal cavity were found occupied by a soft, white, pulpy substance. No morbid appearance could be perceived in the brain or its membranes, except a slight degree of softening at the anterior part of the fornix. The lungs did not collapse when the chest was opened, they were much engorged with blood, and the bronchial tubes were filled with frothy mucus. There was hypertrophy of the right ventricle of the heart, and ossification of the mitral valve.

The combination of abscess in the antrum, with a morbid growth of the neighbouring bones, is very uncommon. The disease in this case was evidently incurable, and would have been found beyond the reach of surgery from its earliest commencement. But it is satisfactory to know, that many of the tumours which originate in the superior maxillary bone may be completely and radically removed by the operation lately introduced, on the same principle that has led to such successful results in the treatment of similar growths affecting the lower jaw. Betsy Lees, of Galashiels, whose case is related in the Eighth Report of the Surgical Hospital, and who was operated on in January, 1832, on account of a large, soft, bloody, most malignant-looking tumour, which encroached upon the cavity of the mouth, and elevated the cheek, presented herself lately, to show that she was in all respects perfectly well. The experience of M. Gensoul of Lyons, which has lately been given to the profession,* is strongly in favour of this operation. He was the first to perform it, which he did in 1827, on account of a fibro-cartilaginous tumour of the bone, and the patient continues well. He has operated in eight cases, and follows the same method which has been described in the foregoing reports, and elsewhere,† without any knowledge of his proceedings.—*Ibid.*

32. *Abscess of Perineum, communicating with the Urethra after its evacuation.* By JAMES SYME, Esq.—Alexander Hay, aged thirty-two, was admitted on the 21st of July. He complained of swelling of the scrotum; but when the perineum was examined, it appeared so full and tense, that no doubt could be entertained as to the presence of matter there in considerable quantity. He complained of great pain; and stated that he had begun to do so thirteen days before, soon after exposure to cold and wet. About 3xii. of thick and excessively fetid pus were evacuated by a free incision, after which a poultice was applied to the perineum. On the 28th, the patient observed that a small quantity of urine, about two tea-spoonfuls by computation, passed through the wound; on the 30th a full-sized bougie was passed into the bladder, without encountering any resistance from contraction of the canal; on the 6th the urine ceased to pass by the preternatural opening; and on the 12th he was dismissed quite well.

* Lettre Chirurgicale sur quelques maladies graves du sinus maxillaire, &c. Lyons 1833.
 † Principles of Surgery, by James Syme, Edinburgh, 1832.

It is a well known fact, that the cavities of abscesses near the urethra, like those in the vicinity of the rectum, are apt to communicate with the neighbouring canal some time after the evacuation of their contents. This cannot, of course, be owing to ulcerative absorption induced by pressure, and probably depends on the same principle that leads to the successive formation of several openings in the thin integuments lying over the cavities of abscesses, where they have been rendered very thin to a considerable extent.—*Ibid.*

33. *On the Obliteration of Veins as a Mode of Curing Varices.*—M. DAVATS, in a learned paper on the different modes of alleviating and curing varicose veins, objects, on various grounds, to all the plans hitherto proposed, and recommends obliteration of the affected vein by a novel procedure. This consists in irritating very slightly two opposite points of the internal surface of a vein, and, at the same time, in keeping those points in contact. A simple sewing needle of any description will answer for the operation, which is thus performed. First the vein is made to swell by means of ligature, is seized by the finger and thumb, and isolated by passing a needle transversely under it; then the anterior, and next the posterior, wall of the vein is pierced perpendicularly with the point of another needle, which is conducted higher up, to pierce a second time first the posterior and next the anterior wall. The last needle is retained in its place by means of a thread twisted like the figure 8. In five days the thread may be cut, and the needle will fall out of itself. The first needle may be left till it drops spontaneously. In a few hours after the expulsion of the needles, the little wounds will heal kindly.

M. Davats has made several experiments, which prove the safety of the operation, and the rapidity with which a radical cure may be thus performed, complete obliteration taking place by the fifteenth day. In one experiment the operation was performed on two parts of the same vein, leaving a portion between them filled with blood. The blood coagulated, and was absorbed; the vein became obliterated, and no accident occurred.

M. Davats maintains, that compression alone is insufficient to cause obliteration of a vein, and supports his opinion by several experiments, in which the most perfect compression failed to secure this result.

By the operation proposed, the vein is transformed into a cord, white, round, filiform, and analogous to ligamentous tissue. The obliteration extends above and below the point of lesion, as far as the first anastomosing veins, which become sufficiently dilated to give free course to the blood. Beyond the anastomoses the venous tissue assumes its normal state. No trace of inflammation is observed; no clot of blood found in any part; and the cellular tissue surrounding the portion of obliterated vein is found in the most healthy state.—*Ibid.*

34. *Retention of Urine produced by Imperforate Hymen.*—The following instance of this is recorded by Mr. COLLEY, in the first volume of the *Provincial Medical and Surgical Transactions*. “March 25th, 1832, I was requested to visit a young lady, aged 16, who resided at a considerable distance from this town. She had been ill three days and nights, with retention of urine; and her medical attendant had been under the necessity of relieving her by the introduction of the catheter, twice daily, during that period. The existence of so distressing a disease excited great apprehension; and my opinion was solicited respecting its nature and treatment. I found the cause of the ischury to consist of an imperforate hymen, which, by totally preventing the discharge of the menstrual fluid, had produced a mechanical obstruction in the urethra. The external orifice of the meatus urinarius was situated in a cul-de-sac, and the hymen was tense and slightly protruded. The bladder having been evacuated, I proceeded to examine the hypogastrium, where I discovered an obvious and considerable enlargement of the uterus of an oblong shape, extending nearly to the umbilicus. The lower part of the abdomen had been increasing in bulk during the last two

years, and the breasts were fully developed; in short, she appeared to be in a state of pregnancy.

"The patient being laid on her back, I pushed a double-edged scalpel through the hymen, which was very thick and tough; beginning at the upper part just below the meatus. Nearly four pints of tar-like fluid gushed out; after which I continued the incision down to the perineum. An aperture was thus made capable of admitting two fingers, into which a plug of lint was introduced."

Before the whole of the menstrual fluid was drawn off the young lady became hysterical, and so continued for four hours. The discharge ceased in a few days, a piece of sponge was introduced to keep asunder the sides of the vagina at the incisions, and the wound was healed by the 16th of April. The hysterical fits continued for some days longer, when profuse menstruation occurred, soon after which the hysteria subsided.

Mr. Coley remarks that he has seen many cases of incomplete obstruction, in which there is a minute aperture at the upper portion of the hymen, through which part of the urine is forced out in drops or in a small stream, with great pain, resembling that produced by stone in the bladder. As the imperfection exists from the time of birth it is usually discovered when the child has attained the age of three or four years. In the cases which Mr. Coley has witnessed, a free incision effected a permanent cure. Sometimes the membrane is found double, sometimes of extraordinary density.—*Med. Chirurg. Rev. July, 1833.*

MEDICAL JURISPRUDENCE.

35. *On a peculiar Animal Substance produced during the Decomposition of the Dead Body.* By MM. OLLIVIER D'ANGERS and A. CHEVALLIER.—At certain periods of a peculiar decomposition which dead bodies undergo, consisting of a progressive *mummification*, about three months or less after interment, there is found a particular substance produced from all, or the greater part, of the various organs or soft tissues which cover the skeleton. On the surface of the liver, which at this period is found of a blackish-green, withered, in a state of incipient desiccation, and diminished at least to half its volume, this production appears as a white, hard matter, sometimes under the form of irregular granulations, sometimes like flat plates of a crystalline appearance, rough to the touch, disposed in groups sufficiently large to make their whiteness the more remarkable, from their adhering to a dark-green surface. It is deposited so as to form sometimes straight longitudinal bands parallel to each other; sometimes rounded plates, like concentrated and undulating zones, somewhat similar in appearance to the white lichens found on the bark of certain trees. The same kind of substance, variously disposed, is found in the interior of the liver on the internal wall of its veins, in the aorta, and great vascular trunks. It differs entirely, not only in physical characters, but also in chemical composition, from the white grains found in the stomach.

After submitting this substance to as many tests as the small quantity which they possessed would permit, MM. Ollivier and Chevallier conclude, that it contains, 1st, traces of an ammoniacal salt; 2d, an animal matter analogous to gelatine; 3d, traces of the muriate of soda; 4th, a fatty matter soluble in alcohol; 5th, an animal matter soluble in acetic acid; 6th, traces of an alkaline carbonate, the result of incineration; and 7th, traces of the phosphate of lime.

It is not probable that this singular production could ever become the cause of any mistake in the matter of poisoning; for, whether found adhering to the surface of the liver, or detached and free in the midst of the neighbouring organs, chemical analysis would always easily demonstrate that it differed essentially from every species of poison. It is clear that the elements which enter into its composition are furnished by the decomposition of the body. Nevertheless, it is well to call the attention of the profession to every peculiarity

which accompanies the decomposition of dead bodies at different periods following inhumation.—*Ed. Med. and Surg. Journ. from Journ. de Chimie. Med. April, 1833.*

36. *On the Presence of Copper in Wheat and several other substances.*—M. BOUTIGNY, by a very interesting and delicate process, has succeeded in discovering the presence of minute portions of copper in cider which had passed through a copper cock,—in cider, in the preparation of which no copper had been employed,—in the factitious waters of Seltzer and Vichy, prepared by several establishments of Paris,—in the water which had served to boil sorrel, artichokes, spinach, and succory, in a cauldron of yellow copper,—in common beef soup, prepared in a copper pot ill-tinned, and in a corresponding mass prepared in the same pot tinned anew,—in three samples of vinegar, and in six of brandy,—in claret, and in *vin de Chably*,—and in treacle.

The process which he employed, consists in suspending, by means of a hair, the half of a fine needle in the midst of a liquid previously acidulated with sulphuric acid. The apparatus thus disposed, is placed under a bell-glass, and left by itself in an isolated apartment. As soon as the bar of iron is plunged in the liquid, M. Boutigny conceives that the action commences, though it is not till after six, eight, twelve, or even twenty-four hours, according to the state of the atmosphere, that it becomes apparent. Then the needle loses its metallic lustre. It is commonly at the head that the action commences, proceeding successively through the remainder, and terminating at the base. If the operation be carefully watched, at a certain period the superior half of the needle will be found tarnished, while the other half still retains its metallic lustre. Then will be perceived covering the needle some air bells, which become larger, and when they have acquired a certain volume, detach themselves, and burst at the surface of the liquid. In from one to three days this disengagement ceases at the surface of the bar of steel, to commence at the inferior part, a curious phenomena, which occurs only in liquids containing a notable quantity of copper, and which may be attributed to two causes, acting, perhaps, simultaneously, electricity, and the coppering of the needle. The latter opposes the disengagement of the gas by an action altogether mechanical, and the needle, in becoming polarized, does not permit the gas to be disengaged except by its negative pole. After this the head of the needle will be the positive pole, and the inferior extremity the negative. Admitting electricity to be the primary cause of the decomposition of the salt of copper, it is very easy to explain the subsequent phenomena. The steel, according to M. Becquerel, is one of the elements of the pile, the acid of the salt of copper is carried to the positive, and the oxide to the negative pole. This, again, is decomposed—the oxygen goes to the iron, which is oxidized, and dissolved in the sulphuric acid, and the copper is precipitated on the steel, covers it entirely, and opposes, as mentioned above, the disengagement of the gas. This, however, does not constitute all the action, for the sulphuric acid which M. Boutigny has elsewhere shown to be added merely to render the water a better conductor of the electric fluid, acts on the steel by causing the decomposition of the water, the oxygen of which goes to the iron, while the hydrogen is evolved. The oxide of iron thus formed is dissolved in the sulphuric acid, and forms sulphate of iron, which remains in solution.

To insure the success of the experiment, the following conditions are necessary: 1st, a small bar of steel; 2^d, an acid capable of dissolving the deutoxide of copper, and one of the elements of the steel, after being oxidized at the expense of the water, or of the oxide of copper, and having no action on metallic copper—sulphuric acid, fulfilling all these conditions, ought consequently to be preferred. The other conditions are a liquid, slightly, if at all, viscid, and of the same or nearly the same density as distilled water.

After the appearance of the phenomena enumerated above, there occurs a moment when they cease, which is known by the absence of bubbles, and most

frequently by the horizontal position of the cylinder, which has replaced the needle on the surface of the liquid. This cylinder, being carefully lifted, and mixed with a grain of borax and a sufficient quantity of oil to form a paste, is to be placed in a testing-tube, and submitted to the action of a blowpipe, till it acquires a very deep red-brown colour. In this state, the tube, when examined by the aid of a good magnifying glass, will exhibit several points of metallic copper scattered over its surface.

The results of the facts and experiments narrated by M. Boutigny are, 1st, that articles of food and drink prepared in copper vessels, contain almost always more or less of that metal—a fact which renders it desirable that for this metal some other should be substituted; 2d, that wine, cider, and wheat, conceal sometimes atoms of this metal, but only when it is contained in the soil in which the vines, apple trees, and wheat grow; from which we may infer, that the presence of copper in vegetables is *not the result of the act of vegetation*, but only of absorption; 3d, that the discovery of copper in articles of food and drink raises a question in legal medicine, which renders new investigations necessary, and which, in the meantime, ought to render experiments very circumspect in cases of poisoning by copper.—*Ibid.* March, 1833.

37. *Weight of Man at different Ages.*—From observations made by M. Quetelet, on sixty-three male, and fifty-six female new-born infants, in the Maternité de Saint Pierre, at Brussels, it appears that the mean weight of the former was 3·20 kilogrammes, (6·536lbs,) while the length, by Chaussier's mecometer, was 0·496 metres, (1 foot, 6 inches, 3 lines;) and of the females, the mean weight was 2·91 kilog. (5·923lbs,) the length 0·483 metres, (1 foot, 5 inches, 10 lines.) Whence it is inferred that at birth there is an inequality in the weight and size of the two sexes—the males having the advantage in both.

Chaussier seems to have been the first who remarked that the infant, presently after birth, begins to lose some of its weight. M. Quetelet, from seven series of observations, extending in each case to the seventh day, has confirmed M. Chaussier's remark, and shows that the infant does not begin to grow perceptibly till after the first week.

M. Quetelet gives a table of the corresponding weights and statures at the different ages. We extract a few of them, by way of specimen:—

Ages.	Males.		Females.	
	Height.	Weight.	Height.	Weight.
At Birth	<i>m.</i>	<i>k.</i>	<i>m.</i>	<i>k.</i>
1	0·500	3·20	0·490	2·91
3	0·698	9·45	0·690	8·79
6	0·864	12·47	0·852	11·79
10	1·047	17·24	1·031	16·00
20	1·275	24·52	1·248	23·52
30	1·674	60·06	1·572	52·28
40	1·684	63·65	1·579	54·33
50	1·684	63·67	1·579	55·23
70	1·674	63·46	1·536	56·16
	1·623	59·52	1·514	51·52

In order to render these results still more striking, the author has delineated, by two curves, the course which the weight takes in either sex. the ordinates of the curves expressing the weights, and the abscisses the ages. It is thus seen at a glance, that at any given period the man is generally heavier than the woman. About the age of twelve, however, it may be observed that the weights

of both sexes are generally equal. This circumstance must, of course, be imputed to the earlier approach of puberty in the female.

Some of the other conclusions of M. Quetelet are curious. Man attains his maximum weight about the age of 40, and begins to lose weight very sensibly towards 60. Woman is not at her maximum weight till towards 50. Between 18 and 40, the period of her fecundity, she does not acquire any very perceptible increase of weight.

Both man and woman, at the period of their complete development, weigh almost exactly twenty times as much as they did at birth. Their height at the same period is about $3\frac{1}{4}$ times what it was at birth.

In their old age, both man and woman have lost 6 or 7 kilogrammes of their weight, and 7 centimetres of their height.

During the growth of both sexes, it may be stated that the squares of the weights are as the fifth powers of the heights.

After the development is complete in both sexes, the weights are very nearly as the squares of the heights: whence it may be inferred that the increase in the height is greater than the transverse increase of the body, comprehending both its breadth and depth.

The mean weight of an individual, without reference to sex or age, is 44·7 kilogrammes, (91·336lbs;) or, if sex be taken into account, it is 47 kilogrammes, (96·015lbs.) for men, and 42·5 kilogrammes, (86·831lbs.) for woman.

According to the observations of the late M. Tenon, of the Institute, [which observations are given by way of supplement to M. Quetelet's paper,] the Laplanders and the Patagonians present the two extremes of man's stature. The former commonly measure from 4 feet to 4 feet 6 inches, 4 feet three being their mean height, and their women are scarcely less. The Patagonians measure from about 5 feet 6 inches to 6 feet 3, and their women are generally 7 or 8 inches shorter.

The tallest men in Europe, M. Tenon thought, were in Saxony. But he added, that climate or locality had less to do with the stature of men than their race or variety. Close by the Saxons, for example, we find the Silesians, who are a short people; and the Patagonians are the Pecherais, a people much inferior in height. In Savoy also, and particularly about *La Haute-Maurienne*, extreme varieties have been noticed. Yet it can scarcely be doubted but that the climate, the nature of the soil, the sort of government, the state of civilization, and the comforts, or the contrary, of each people, have such influence in determining a national stature. This position has been strongly urged by M. Villermé, in his *Memoire sur la Taille de l'Homme*; and very interestingly stated by W. F. Edwards, in his *Caractères Physiologiques des Races*.—*Lond. Med. Gaz. September, 1833.*

MISCELLANEOUS.

38. *On the Transmission of Medicaments into the System by Means of Electro-Galvanism.*—It was stated some time since in one of the English journals, that by the influence of electricity the vaccine virus had been conducted along a wire, and the disease communicated from one person to another as effectually as when vaccination is performed in the ordinary manner. This statement strongly excited our interest at the time, and we should have then called the attention of our readers to it had it not been coupled with the startling assertion that *intermittent fever*, during the hot stage, had been communicated by the same means to a perfectly healthy person. This last assertion evidently proved too much, and so completely destroyed all the confidence we were disposed to repose in the first, that it appeared to us expedient to wait for some confirmation of the statement, rather than give currency to it by repeating what might prove to be only one of the thousand baseless assertions constantly put forth by careless observers.

It appears from an editorial article in a late number of the *Gazette Médicale de Paris*, for July 20th, 1833, that Dr. FABRE-PALAPRAT, previously to the publication of the statements just alluded to, had communicated to one of the Parisian societies a mass of observations relative to the property which he has found the electric fluid to possess, of conducting through our organs a number of active medicaments. It is known that electricity given off from a galvanic pile, has the power of decomposing most bodies, and of transferring their elements to one or the other of its poles. This principle or power is the basis of the observations about to be detailed. Dr. Fabre-Palaprat, to whom science is indebted for numerous interesting experiments upon this subject, when he wishes to transfer a medicinal substance to any organ makes use of the voltaic pile, to each pole of which conductors are attached, which serve to transmit the electric current, and at the same time to decompose the substance upon which this current acts. One of the poles is made to communicate with the substance we wish to transfer, the other with a needle, (formed like that used in acupuncture, of steel, silver, or platina, and of the same shape,) which is inserted into the part of organ to which we wish the medicine applied; for example, the thyroid gland or stomach. In a short time the medicine, let us suppose it to be *iodine* or *quinine*, passes with great rapidity, by some unknown route, to that part of the thyroid gland or stomach which is in communication with the point of the needle. This may be repeated, or the operation prolonged until a sufficient quantity of the iodine or quinine has been applied to the part. In order to prove that this transmission of the substance takes place, cases of goitre, and intermittent fever are cited, in which a cure of the disease took place from the operation. But it might be said, that in these cases a cure was due, not to the application of the medicine alone, but to other circumstances; as for instance, to the electro-galvanism employed, as this is known to exercise a powerful influence over the animal economy! In order to set at rest this point, Dr. F. P. in conjunction with the editor of the *Gazette Médicale*, undertook a series of experiments. The following is the manner in which they proceeded. Having prepared a vase of porcelain filled with a solution of the hydriodate of potash, a platina thread was so arranged that whilst one end was plunged in the liquid, the other communicated with the copper pole of a pile of fifty large plates. Another wire of the same metal was made to communicate by one of its ends with the zinc pole of the pile, and by the other with a solution of starch contained in a vase similar to the first. Finally, in order to complete the circle, a finger of the right hand of the operator, was plunged into the iodine solution, and one of the left placed in contact with the platina plate. (We should observe that here, that portion of the conducting circle which passed from the body of the operator to the pile was perfectly dry.) In a few seconds after the circle was formed, in the manner described, several points of a violet tint were observed to form upon the thread which communicated with the starch. These points gradually enlarged, and after a time united one with another, until a complete line of a violet hue was formed from the end of the thread to the hand. The appearance of this peculiar colour, (violet,) left no doubt whatever as regards the translation of the iodine from the extremity of the conductor attached to the copper pole, to that of the zinc. The following is the chemical explanation of this phenomenon; at the moment the two electric currents disengaged from the two poles of the pile meet, the hydriodate of potash placed in contact with the copper pole is decomposed; the hydrogen is given off; the potash becomes dissolved in the water of the solution, and the iodine powerfully attracted by the positive current, passes rapidly to the zinc pole, as is shown by the violet colour of the solution of starch, (the best test for iodine,) placed in communication with this pole. The iodine was selected in these experiments, on account of its presence in extremely minute portions even, being so readily discovered by a solution of starch. Reasoning from analogy, however, there can be no doubt, but that a similar translation of any other body, subject to the action of electricity, would also take place, provided we took the precaution of placing the organ to receive it in communication with that pole

of the pile, towards which the electro-chemical disposition of the substance would cause it to proceed. We here repeated these experiments with the iodine, and failed in producing similar effects, notwithstanding every thing seemed to be arranged as it should be. Dr. F. P. has also frequently met with the same results. This failure, however, is but temporary, for with a little patience, and by frequently repeating the operation, we are generally rewarded with success. Dr. F. P. attributes this irregularity of action to the impermeability of the skin of the operator during the operation. If, as he supposes this irregularity is dependent upon the impermeable nature of the cutaneous tissue of the operator, it is evident that by the employment of metallic needles, this irregularity could not take place, for the conducting circle is here formed of inert matter; the conducting power of which is not affected by any accidental circumstance. However, this may be, there rests not a doubt of the possibility of causing the translation of certain remedies to our organs through the medium of an electro-galvanic current, although we are as yet entirely ignorant of the route of this transmission, as well as of the mechanism of the causes which put it in play. Before closing this notice it may be as well to mention certain precautions which we should take in order to insure the success of the operation. In order that decomposition may take place, it is first necessary that the pile be possessed of a certain degree of energy, and further, that the electric current pass uninterruptedly through the different pieces of which the pile consists. These two indications are fulfilled, the first by multiplying with the number and the surface of the metallic parts of which the pile is formed, (of course its entire force will be in proportion to the number of the plates and the extent of their surfaces;) the second by interposing between the plates some body which is a good conductor of electricity. Water for instance, or what is still better, water containing a certain quantity of some salt or acid in solution. Dr. Fabré-Palaprat has also observed, that the decomposed bodies were conducted along a moist conductor only, so that if a part of the conductor of the pile be dry, and the remainder sufficiently moist, the substance experimented upon does not traverse the former, but only the latter. It may be remarked en passant, that as all those portions of the conducting circle, formed either by the needles or by the skin alone, are supposed to be perfectly dry; that there would be but little possibility of the substance operated with, passing in the direction of this portion; for as we have mentioned, this transmission takes place only when the conductor is moist. But it is positive that the electric current circulates through the different organs into which the needles are inserted, as far even as the extremities of the needles. We may account for the occurrence of this phenomena in the following manner. The whole tract of the needles is imbued with a sufficient degree of moisture, derived from the fluids which circulate in all the tissues, and which are saline or alkaline in their nature, to cause an attraction of the electric current towards them. This moisture, moreover, from its alkaline properties is one of the most powerful conductors we could possibly make use of. Whenever we wish to operate with a substance of a compound nature, an acid for example, we should make use of a pile of feeble energy, that is to say one composed of but few plates, and these of a small size. If we use a powerful one the substance will be decomposed, and we transmit not the substance itself, but its elements. We may operate in this way when we wish to destroy by degrees an exuberant tissue, by means of the nitrate of potash. A simple current would be sufficient to disengage the acid from its base, and cause it to pass over to the part operated upon. Another inconvenience likewise attends the application of too powerful a current. The quantity of electricity that passes over in this case, may be sufficient to communicate a fatal shock to the part; and if needles are used, their extremities may be heated to incandescence, and thus cauterize more or less deeply the parts into which they are inserted. Dr. Fabré-Palaprat, aware of this, has frequently applied a strong electric current to the needles inserted into a part in which he wished to produce the effects of a moxa.

39. *Influenza at Berlin.*—Dr. HUFELAND, in the March number of his Journal, alludes to the then prevailing epidemic influenza, or grippe, which subsequently, as all our home-readers well know, extended itself to this country, and spread like a broad sheet over almost every hole and corner of it. The venerable German tells us that, since the year 1782, no epidemic has been known to seize so many persons; in many places, more than one-half of the inhabitants were affected with it. Both arose in Russia, and followed a south-westerly direction; both made a sudden invasion on a vast number of people in a place at the same time; both were of short duration, and were comparatively little dangerous; both affected chiefly the mucous membranes and nervous system; and in both blood-letting and depletory measures were hurtful. In Petersburg, there were at least 100,000 invalids; in Memel, whose population does not exceed 10,000, there were 8,000; and in Berlin, at the date of Hufeland's writing, upwards of 50,000 had been seized. It may be considered as a catarrhal fever, accompanied with, and followed by, extraordinary depression of the nervous energy for several weeks after the pyrexia has ceased. Mild antiphlogistic treatment and gentle diaphoretics have, in most cases, been sufficient to cure it, even in this "*blood-thirsty age*" of ours.

A correspondent from Königsberg adds a few interesting remarks on the epidemic, as witnessed by him there. The winter had been unusually healthy up to the end of the first, or the beginning of the second week in March. The writer, as well as some other physicians, had, indeed, remarked that there had been, for some time previous, a tendency in most febrile complaints to a nervous or adynamic type; and this is quite in accordance with the history of other epidemics, as, for example, of the cholera: the influence of the stormy cloud is felt, before it breaks in its full sweeping force. The symptoms were at first smart pyrexia, with very severe head-ache, sneezing, sore throat, and violent cough, which was generally dry and harsh, at least in the beginning; the skin moist, and the tongue white. The feelings of general pain, weakness, and great depression of nervous power, were very remarkable. The fever generally abated in three or four days, but the patients were long of recovering their strength. The mortality occasioned by the disease was very trifling, if we consider the number of patients, and occurred chiefly among children, in whom bronchitis was developed. Almost every one in Königsberg was affected with it, in a greater or less degree; some, indeed, very mildly, but still they had catarrhal symptoms. During its prevalence, other diseases were arrested, and seemed to slumber for the time; the sick lists presented nothing but influenza—influenza!! Commerce was frequently suspended, and churches had no clergymen to officiate in them. In the course of the second week, the disease became less severe; in some the fever was absent—in others the head-ache, or the sore-throat, or the cough, and so forth; but such patients were often much longer indisposed than those who had sustained a smarter attack during the first week; whether this arose from their taking less care of themselves, or whether the "*potentia nociva*" required a certain time for its maturation in, and expulsion from the system, we cannot say. In the third week, the number of cases was very much diminished, and so disarmed now was the disease of its violence, as to receive the appellation of "*grippine*," a diminutive of "*grippe*;" in the fourth week, scarcely any new cases were seen. The mortality may be estimated by the following table:—We should premise that the average weekly mortality at Königsberg is from 40 to 50 in summer, and from 50 to 60 in winter.

Deaths from 8th to 15th March	-	-	-	-	43
——— from 15th to 22d	-	-	-	-	72
——— from 22d to 29th	-	-	-	-	105

The last is a greater number than has been known for many years, except when the cholera was raging. During the epidemic influenza of 1831, the highest number of deaths in a week was 96.—*Med. Chirurg. Rev. Oct. 1833.*

AMERICAN INTELLIGENCE.

Trial for Infanticide. By ISAAC THOMAS, M. D. of Westchester, Pennsylvania.—Hannah Hall was indicted for murdering her infant illegitimate child, also for concealing its death, and had her trial in the Court of Oyer and Terminer for the county of Chester, July session, 1833, before the honourable Isaac Darlington and his associates.

Hannah Hall was twenty years old; had never been married. The child was begotten on the 22d of July, 1832, and born on the night of the 17th April, 1833; being nine months, lacking five days. On the 15th of the same month, she ran some distance across a meadow, and on the 16th did an unusually large scrubbing, washing, and ironing. Persons were up in her room shortly before and after the birth, so that it was known that the child was killed or died as soon as born. By feigned pretences for her sickness, she deceived the family with which she lived; and as to her pregnancy, they did not suspect it, or at least did not think her time of delivery was near at hand. She concealed the body in a band-box in her room. It was wrapped in a calico frock, and covered over with other articles of dress. The season was dry and favourable to the keeping of a dead body. On the 22d of April it was discovered, and on the 23d an inquest was held. Drs. Andrew Wills, George Thomas, and Isaac Thomas were in attendance under the direction of the inquest, and examined the body. While the examination was proceeding, Hannah confessed to the inquest, and it was not deemed essential to proceed with the examination; but the physicians made what was considered a partial one, for their own satisfaction. The following is the substance of their testimony before the jury at her trial.

The body presented the appearance of a healthy full grown child. The head was well covered with hair, and the nails on the fingers and toes were perfectly formed; hence it was not deemed necessary either to weigh or measure the child, as is recommended by medical jurists where appearances are equivocal. The mouth and eyes were closed. Not the least appearance of putrefaction was to be discovered in any part of the body. The placenta had been removed when the child was discovered, it being very offensive; the umbilical cord having been separated eight or nine inches from the body. The skin was abraded in a few spots on the right cheek, such as might have been caused by the mother's nails, when assisting the parturient efforts. A ligature composed of two pieces of silk ribbon tied together, had been passed twice round the neck, and tied in a bow-knot in front. There was a band of flesh between the turns of the ribbon, which was tumid and discoloured. The ligature had been drawn very tightly, so as to press deeply into the flesh. The tumid portion was of a dark-red colour, presenting the appearance of ecchymosis or vascular turgescence; though some of the jurors and others spoke of its being of a different colour. It was not cut into to ascertain its true character, but was believed to be the result of circulation after the ligature was passed. The face and neck above the ligature were slightly discoloured, differing in appearance from the rest of the body. A pretty free discharge of meconium covered the nates of the child and the cloth upon which the child lay, unmixed with any other discharge. When the ligature was removed, the skin immediately under it in the depression, was of a pale colour, as if the blood had been forced out. The chest was opened in the usual manner, and found to be pretty fully occupied by the lungs. They presented a uniform rosaceous appearance, and were

not discoloured in spots. The condition of the diaphragm was not particularly noticed. The usual hydrostatic test was then resorted to. The lungs and heart together were placed in spring water of the ordinary temperature. The whole mass floated lightly on the surface. The lungs were then separated from the heart and placed in the water and floated lightly. They were cut into pieces, and pressed to the bottom of the vessel, but rose immediately to the surface, like a cork, when let go from the fingers. The heart and a portion of the liver were found to sink. The lungs crepitated distinctly when pressed between the fingers. When pressed, a frothy mucus issued from the air-cells where they had been divided with the knife. They were not pressed between the folds of a cloth to ascertain whether they were buoyant from gas having been generated by the putrefactive process, as there was no appearance of putrefaction in any part of the body. The lungs are admitted by all to be the last to pass into the putrid condition. Neither the heart, brain, nor any of the other viscera were examined. Neither was the aorta or cavæ tied before the lungs and heart were removed, not supposing that any important inference could be drawn from an examination of the heart where death occurred so soon after birth. Neither was the ductus arteriosus nor ductus venosus examined, for the same reason. A further examination did not take place, in consequence of the jury of inquest being satisfied by her confessions.

Drs. Andrew Wills and Isaac Thomas were of opinion that respiration had taken place, from the appearance of the lungs, and that the arterial circulation had gone on after the ligature had been passed round the neck, from the tumid and discoloured appearance of the portion of the skin that was contained between the two bands of ligature, and that the ligature had been the cause of death. They admitted the possibility of respiration before complete delivery, at which time a ligature might be passed round the neck. They also admitted the possibility of intra-uterine respiration in assisted labour, and not without. They believed that exercise sufficient to destroy the child in utero, at a period so far advanced, would endanger the life of the mother.

Dr. George Thomas had not formed a judgment as regarded the death, but believed that respiration had taken place, and that circulation had gone on after the ligature was passed. All believed that the ligature would not have caused the appearance that was exhibited, had it been placed after death. All admitted that the hydrostatic test was not sufficient to rely upon, where other circumstances did not concur; that medical jurisprudence, in reference to infanticide, was yet involved in difficulty.

The counsel for the prisoner presented Dr. Wilmer Worthington in evidence, who had not seen the child. He testified, that were he called to examine a case of infanticide, he would proceed in the order recommended by the best authorities. He would measure the child from the umbilicus to the head and to the feet, ascertain its weight, and go into a full examination of the brain and all the viscera of the chest and abdomen. The lungs may float from artificial respiration and putrefaction. A child may breathe before full birth. The trachea should be opened to see whether the sides were compressed, or whether there was not some foreign substance within it. The foramen ovale should be examined to see if it was closed; if so, the child must certainly have lived. The ductus arteriosus and venosus should be examined for the same reason. The left auricle and ventricle should be examined, as they would be empty in case of strangulation. In death from that cause, the colour of the lungs would not be roseaceous. The abdominal viscera should be examined to ascertain if aliment had been taken. The brain should be examined to see if there was congestion. Tumefaction may arise from putrefaction. In a case of life and death, all tests should be resorted to. The hydrostatic test is in discredit. It is a safe test when other things concur to corroborate it. Discoloured portions should be cut into to discriminate between ecchymosis and suggillation. In the former case the vessels would be ruptured, in the latter not.

The court directed the jury to disregard the confessions of the prisoner, as subsequent testimony was given to show that they were made upon importu-

nity, and under the expectation of favour. Verdict, not guilty of the murder; guilty of concealing the death.

Westchester, Chester County, October 17th, 1833.

New Remedy in Intermittent Fever. By W. A. GILLESPIE, M. D.—The following pill, the composition of which I learned from one of the physicians of the Baltimore Infirmary, has been very successful in my hands. I wish therefore to communicate it to the faculty for further trial. After premising the necessary evacuations the pill is to be given precisely an hour and a half before the regular expected return of the chill. This remedy in my hands has succeeded in a number of cases, in some where bark had been tried in vain; though I am unwilling to place that confidence in it yet, which it seems entitled to, until it is further administered under every variety of circumstance. An eminent physician has informed me that he has succeeded in arresting the paroxysms thirty-nine times in forty. My success has not been equally great, but sufficient to excite an interest in the remedy which I wish to be tested by all practical observing physicians:—℞. Camphor, ij. grs.; opium, iss. gr.; calomel, v. grs. Fiat pillula to be given as above.

From my observations the paroxysms are not more liable to return, if as much so, as when they are checked by bark or quinine. It has succeeded in quotidians, tertians, quartans, and irregular intermittents.

In addition to this I can add that I shall not attempt to explain the *modus operandi* of the remedy, but it is probable that a greater impression is made on the nervous system by it, than by the miasmata which produce intermittents; thus breaking up that associative periodical train of symptoms which constitute intermittent disease.

I have prescribed this pill in intermittent neuralgia with success.

Louisa, Virginia, December 15th, 1833.

Case of Œsophagitis. By JOHN B. ZABRISKIE, M. D.—Sarah Daniels, aged thirty-five, corpulent, of a sallow complexion, with dark hair and eyes, had been suffering under amenorrhœa for seven months. For this she had taken much medicine, and among the rest a large dose of calomel, which had salivated her profusely. According to her own account, she had suffered greatly from excessive salivation for more than two months. On the 9th of June she entered the alms-house. She then complained of considerable difficulty of breathing, of soreness of the gums, of a painful swelling of the left ankle, of loss of appetite, but principally of great difficulty of swallowing. She described a sensation of a tumour pressing upon the œsophagus, which in a great degree prevented swallowing. Food would appear to descend as far as the obstruction, but could not pass it, and would be immediately brought up. Some mild drinks she swallowed with less difficulty, but still every act of deglutition gave her pain. This difficulty was greater at one time than another, and she described the apparent obstruction as being at one time nearer her throat, and at another lower down. There was no febrile excitement; the skin was cool, the tongue moist and clean, the pulse regular.

The absence of febrile excitement, the apparent motion of the obstruction, and the amenorrhœa, made me suspect an hysterical affection. Asafœtida was administered without effect, a blister was then laid over the sternum, and a dose of magnesia given. She felt somewhat relieved after this, and said the obstruction had moved further down. She could now swallow without much difficulty any mild fluid aliment. She soon after this complained of tenderness of the epigastrium, pain upon pressure, and thirst. This was succeeded by diarrhœa and vomiting, especially upon taking any drinks. She gradually grew worse till the 23d, when she expired.

Autopsy four hours after death.—The body presented no emaciation, the cellular substances being every where filled with fat.

The lungs adhered in many points, and were filled with dark green spots of

different sizes, from that of a pin's head to the size of a hazle-nut; the bronchi contained a purulent fluid, which was in the greatest abundance in the large tubes next the trachea; the heart was of natural size, and covered with a great quantity of fat; the œsophagus contained a fluid having the colour and consistence of pus; the vessels of the mucous membrane were highly injected with blood, and the anterior part of the tube near the arch of the aorta, which was the point where she complained most of the obstruction, was completely disorganized, and for the length of nearly two inches, could be pressed into a pulp with the fingers; in several places in this part, the tube was perforated, and there appeared to be a slight infiltration of the purulent fluid contained in the œsophagus into the cellular membrane surrounding this part. From this point the redness spread through the whole stomach and duodenum, the vessels of both being very fully injected with blood, and the mucous coat was so tender in many places that it could be scraped off in a soft pulpy mass. Below the duodenum the mucous membrane presented its natural colour. The spleen was very much thickened. The uterus was of natural size, but the ovaria were very small, having a shrivelled appearance.

It appears that the difficulty of deglutition was produced by the irritation of food passing an inflamed portion of the œsophagus, and which caused a sensation exactly similar to that of a tumour pressing upon this part.

The disease it is evident was in the first place œsophagitis, and the inflammation afterwards extended to the stomach, causing the tenderness of the epigastrium. This case shows how great a lesion may exist in some part of the alimentary canal, without febrile excitement or pain, except when irritated. It also shows the difficulty of distinguishing between a spasmodic stricture of the œsophagus, and an inflammation. And may not those strictures called spasmodic in most cases be owing to this cause, that some portion of this canal is inflamed.

Case of Amnesia cured by Cupping. By JOHN B. ZABRISKIE, M. D.—Patrick Hart, aged 45, of a thin, spare habit, phlegmatic temperament, who had been very intemperate, had been troubled for a long time with a loss of memory, frequently forgetting the most common things occurring to him. He would often leave part of his clothes in the field where he had been at work, or in the road, and could not remember where he had left them. In conversation he would repeat the same thing several times, and often would forget what was told him, so that frequently he would appear almost like an idiot. As he complained of pain and distress in his head, cups were applied to his temples, which relieved the pain. About three weeks after this he again came to me, stating that his memory had been much better since he had been cupped, and requesting that this might be repeated. It was accordingly done, and since this he has frequently told me that he could remember as well as ever he could, and his companions have also assured me that his memory was restored.

Tables exhibiting the number of white Persons in the United States, at every Age, deduced from the last Census. By J. INGERSOLL BOWDITCH.—*Table I.* This table exhibits the number of white persons in the United States, in classes, as given by the last census.

Table II. The object of this table is to show the number of white persons living, at every age, in the United States. It is deduced from Table I. by interpolation for every 10 years, from 20 to 100. Below 20 years the numbers are irregular, and we have therefore used the total number from birth to 19 years, without reference to the four classes into which it is divided. This irregularity renders it impossible to form a satisfactory table for these years; but if the present method of enumeration be continued with more minuteness in the ages below 20 years, we shall probably acquire sufficient data to form more accurate tables of mortality for this country, than any now extant.

From this table the expectation of life might be ascertained, provided the

number of inhabitants did not vary; but it has been found from the enumerations made within 40 years, that there has been an annual increase of about three per cent. If we apply to the numbers in Table II, above 20 years, a correction for this increase, the expectation of life will be nearly as follows:

Age.	Exp.	Age.	Exp.
20	36.32	60	15.79
30	32.20	70	9.52
40	28.21	80	4.96
50	21.77	90	2.34

which numbers agree nearly with the tables by Dr. Wigglesworth.

TABLE I. *Containing the Number of White Persons in the United States, according to the Census of 1830.*

Under 5 years of age	1,892,298
Of 5 and under 10	1,534,286
“ 10 “ 15	1,310,751
“ 15 “ 20	1,173,327
“ 20 “ 30	1,868,564
“ 30 “ 40	1,148,161
“ 40 “ 50	724,795
“ 50 “ 60	453,428
“ 60 “ 70	265,776
“ 70 “ 80	116,170
“ 80 “ 90	33,517
“ 90 “ 100	4,477
“ 100 and upwards	508
	<hr/> 10,526,058

TABLE II. *Exhibiting the Number of White Persons living, at every age, in the United States, deduced from the Census of 1830.*

Age.	Number of living persons.	Age.	Number of living persons.	Age.	Number of living persons.	Age.	Number of living persons.	Age.	Number of living persons.
0	431,597	20	227,744	40	87,073	60	33,661	80	4,593
1	368,820	21	217,843	41	83,609	61	31,860	81	4,189
2	342,495	22	208,304	42	80,232	62	30,151	82	3,918
3	328,995	23	198,988	43	76,904	63	28,530	83	3,650
4	319,185	24	190,033	44	73,708	64	26,956	84	3,424
5	310,815	25	181,305	45	70,557	65	25,470	85	3,198
6	303,795	26	172,934	46	67,543	66	24,121	86	2,973
7	297,675	27	164,833	47	64,574	67	22,861	87	2,749
8	292,410	28	157,047	48	61,692	68	21,645	88	2,524
9	287,865	29	149,533	49	58,903	69	20,521	89	2,299
10	283,410	30	142,334	50	56,161	70	19,168	90	1,523
11	279,090	31	135,405	51	53,551	71	17,594	91	1,013
12	274,815	32	128,788	52	50,986	72	15,793	92	674
13	270,495	33	122,443	53	48,555	73	13,857	93	448
14	266,130	34	116,459	54	46,170	74	12,014	94	298
15	261,720	35	110,834	55	43,877	75	10,258	95	198
16	257,265	36	105,387	56	41,625	76	8,682	96	132
17	251,910	37	100,259	57	39,511	77	7,333	97	88
18	245,160	38	95,398	58	37,486	78	6,208	98	59
19	237,015	39	90,854	59	35,506	79	5,263	99	44
Of 100 years and upwards		-	-	-	-	-	-	-	508
Total number		-	-	-	-	-	-	-	10,526,058

A Case of Peritoneal Inflammation occupying the Left Horn of the Uterus, the Bladder, and a portion of the Rectum; in which Air was repeatedly expelled from the Urinary Bladder. By CHARLES HALL, M. D.—The subject of this case was Mrs. J. C. S. a young woman, of sanguineous temperament, though of rather delicate constitution, aged twenty years. She was confined with her first child, November 5th, 1831, after a severe and protracted labour, though there was nothing irregular in the travail, nor preternatural in the delivery. Previous to this period she had for more than a year complained of frequent pains in the left iliac region, which at times streaked down the left thigh and leg. These pains continued with more or less severity, (as she afterwards informed me,) up to the time of her labour—having had no medical application for the complaint. She had also been attended with costiveness and head-ache, for which she had occasionally been bled and taken some light cathartic medicine.

The first knowledge I had of the pain in the left hypogastric region, was two weeks subsequent to her confinement, when it seemed to take on the character of *hæmorrhoids*, which at that time I attributed to the uncommon severity of the parturient throes, having continued, with little abatement, for fifty-two hours. No laceration or violence, however, attended the result. Yet it was reasonable to conclude, not having a previous history of the acute pain in this region, that from the almost incessant rush of blood to the hæmorrhoidal vessels, an engorgement had taken place and occasioned the present exigency. Hence, I made use of the ordinary means resorted to in *hæmorrhoids*. These, indeed, seemed to allay the pain and suffering; but on the 28th of the same month I was called again on account of this affection. I now learned, for the first time, the chronic nature of the disorder. I directed fomentations to the part, and calomel as a cathartic. These, for a time, greatly relieved the keen distress and cruel suffering of the patient. For several days the pain was kept in check by the daily administration of a Dover's powder.

December 18th.—I was called again; the pain of the left side and limb having developed itself in a more determined and prominent character. Had recourse to manual examination—found the parietes of the abdomen, in the vicinity of the pain, rigid, and acutely sensible to the touch. Perceiving the inflammatory nature of the complaint, I let blood from the arm, gave another cathartic dose of calomel, and applied a blister to the local disease, being about midway between the *linea alba* and the superior anterior spinous process of the ileum. Though the febrile action and local pain yielded in some degree to this treatment, the affection appeared, nevertheless, fixed and obstinate. I resorted to depletive and discutient measures to reduce the inflammation; such as general bleeding, leeches, scarifying and cupping, liniments, &c. These were continued until the 3d of February, 1832, when it became manifest that an abscess was formed beneath the integuments of this part of the abdomen.

During the formation of this abscess, there was difficulty in passing the fæces, which, however, did not amount to a total obstruction at any time. But the difficulty was much greater in voiding the urine. In respect to this evacuation, there was, at times, an entire inability to pass the urine, requiring repeated attempts to effect the object. At such times, the flow of urine ultimately succeeded to an abrupt escape of air from the bladder. I was at first incredulous as to the occurrence of this incident, but the enlightened and intelligent matron who attended the patient, dispelled all doubts and assured me of the fact. This collection of air was undoubtedly the result of a morbid secretion from the vascular system in the part, not unlike the cases recorded of similar secretions into other cavities, but I have no knowledge of such an occurrence, before this, in regard to the *urinary bladder*.

The previous examination, as well as the diagnostic symptoms of the case, left no doubt as to the pathology of the tumour, that it embraced the peritoneal covering of the left side of the womb, the bladder, the parietes of the abdomen, and, posteriorly, the rectum; embedded, as it were, in the cellular tissue connecting these organs.

After the broad, hard surface externally had become somewhat elevated, and had given place in its centre to a small compressible space, and after due consultation with my medical brethren, Drs. Chandler and Berry, I punctured the abscess with the common abscess lancet. About half a pint of thick pus was discharged, to the great relief of the unhappy sufferer. The orifice was closed with an adhesive strap. The third day it was reöpened, and a small quantity of matter escaped; after which the incision healed, and the lady soon recovered. She has since given birth to another child, without any bad consequences.

The most remarkable feature in this case is the expulsion of air through the urethra. The abscess may serve to some as a practical lesson; yet almost every practitioner of long experience has doubtless witnessed similar occurrences.

St. Albans, December 4th, 1833.

Notice of a curious Case of Somnambulism. By E. BARTLETT, M. D. (Extracted from a Letter to the Editor.)—Between three and four weeks ago, I had the pleasure of seeing the Springfield somnambulist, accounts of whom you have probably seen in the newspapers. The extraordinary part of the case consisted in the marvellous susceptibility of the eye to its natural stimulus. I played a game of back-gammon with the girl during one of the paroxysms. She saw perfectly well—calling her throws of the dice, and moving her pieces regularly—through several thicknesses of a white handkerchief bound closely over her eyes. She could read, in a room lighted in the usual manner, with *eight* folds of a linen handkerchief over her eyes. These facts are perfectly certain.

In other respects the case resembled many that have been reported; as, for instance, in her not remembering during her lucid intervals any thing which occurred during the paroxysms, though she recollected during one paroxysm occurrences which had taken place in preceding ones. During the paroxysm there was determination of blood to the head, and head-ache. The menses were suppressed. When I saw her, she was under the care of Dr. Woodward, the intelligent and scientific physician of the State Lunatic Asylum, at Worcester. I consider the case one of great physiological and pathological interest, as showing with what an inconceivably small quantity of light it is possible for the eye to perform its functions. We hope to have an account of the case from Dr. W. for the Medical Magazine.

It occurred to me, after finishing my letter, that this short notice of the case might interest you. I see, by the papers of yesterday, that the girl is cured.

[We look with great anxiety for the promised account of this interesting case.]—ED.

Case of Pityriasis Rubra cured by Chloride of Lime. By JOHN B. ZABRISKIE, M. D.—Martha Lewis, aged 61, of a melancholic temperament, slender make, rather hypochondriac, and frequently suffering from a slight derangement of her intellect, found an eruption upon her arms and legs, characterized by a slight elevation of the cuticle, of a red colour, and covered by small whitish scales. They increased, running in a tortuous or serpentine form, covering the skin of a considerable part of her arms and legs, and itching very much at night. The colour was darker in the day time, being nearly purple, but when warm in bed they were of a much brighter red, were more swelled, and were very troublesome. The appetite and general health continued unimpaired. For this she used saline purgatives, sulphur internally and externally, the decoction of bitter sweet, the tincture of iodine, warm baths, the decoction of the woods, mercury internally and externally, and lastly the solution of the chloride of lime externally as a lotion. As soon as she used this last, the eruption began to improve and soon to disappear. It relieved the heat, itching, and other troublesome symptoms immediately. There now remains only some slight discoloration of the skin.

Note from Dr. W. C. WALLACE, of New York, relative to the Anterior Membrane of the Eyeballs.—After Dr. Wallace's communication was printed off, (see p. 404 of this No.) we received the following postscript.

“P. S. That the conjunctiva is covered with a peculiar cuticle I have no doubt. In some cats the membrana nictitans is edged with black. Where the conjunctiva joins the eyelids there is the same colour. When this coloured portion is scraped off after being heated, the conjunctiva appears entire beneath it. The cuticle covering the conjunctiva seems entitled to the description usually given of the conjunctiva. It appears to communicate with the general epidermis, and to cover the conjunctiva and the cornea. It seems thicker and more transparent over the cornea than elsewhere.”

BEAUMONT'S Experiments on Digestion.—It is probably known to most of our readers that Dr. Beaumont of the United States' Army has been taking advantage of an opportunity afforded by a soldier who has a fistulous opening into his stomach, to institute a series of experiments on digestion. We are happy to announce that Dr. B. has published an account of these experiments. We did not receive a copy of the work, however, until too late to prepare for this number such a review as the importance of the subject, and the valuable nature of the experiments required. It will be fully noticed in our next.

BOURGIER'S Treatise on the Minor Surgical Operations.—A translation of this useful work, with notes and an appendix, by Drs. ROBERTS and KISSAM, of New York, has just appeared. It should be in the hands of every student.

WOOD and BACHE'S Dispensatory of the United States.—The favourable opinion we expressed of this work has been confirmed by the verdict of the profession. A new edition has been called for within less than a year from the publication of the first.

TUSON'S Dissector's Guide.—Messrs. Allen and Ticknor, of Boston, have republished this excellent little work, with additions by Dr. Lewis, demonstrator of anatomy in the medical school at Harvard university. We shall notice it more particularly in our next.

Dartmouth College.—The number of students in November last, was, in the classical department, 156; attending the medical lectures, 100.

Transylvania University.—The medical class, during the present session, amounts to 260.

Berkshire Medical Institution.—The number of students, in November last, was 104.

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